The Builder.

VOL. LXXX.—No. 3025. JANUARY 26, 1901

ILLUSTRATIONS.

Apartment Houses :—
Der Romahof, Vienna (Professor Julius Deininger); Corner House, Stefansplatz, Vienna (Messrs. Fellner & Helmer *Extra Large Page Ink-Photo.*
House at Vienna (Professor Deininger); House at Vienna (Professor Wagner) ..... *Double Page Ink-Photo.*
Plans ..... *Two Double Page Photo-Litho.*

Blocks in Text.

Palace Chambers, Buckingham Gate. Plan..... Page 83 | The Mansion, Sloane Gardens Plan..... Page 83
Apartment House, Prague ..... Page 84

CONTENTS.

In Loyal Memory 75
The Law of Light 76
The New Raid of the Water Companies 76
Notes 77
The Royal Institute of British Architects: Difficulties and Hindrances in Producing Good Modern Architecture 79
The Architectural Association 81
Architectural Societies 87
Archæological Societies 87
Competitions 87
Illustrations :—
Views and Plans of Apartment Houses 88
Building Contracts from a Builder's Point of View 88
Engineering Societies 90
Ancient Lights 90
Books Received 91
The London County Council 91
Applications Under the 1894 London Building Act 92
Correspondence :—
The Analysis of Mortar 93
Soane Medallion Competition 93
Coomber v. Somerset 93
General Building News 93
Sanitary and Engineering News 94
Foreign 94
Miscellaneous 94
Capital and Labour 95
Legal :—
Important Point Under the London Building Act, 1894 95
Use of Guy-Rope in Hoisting 95
Recent Patents 96
Meetings 96
Some Recent Sales of Property 97
Prices Current of Materials 97
Competitions, Contracts, and Public Appointments 98-99
Tenders 99

In Loyal Memory.

THE death of a sovereign who has reigned so long, and been so justly beloved and honoured as our late Queen, is one of those events before which men of all professions must feel bound for the moment to forget the limits of professional interest, in view of those wider interests which unite us all as Englishmen and as fellow-subjects of the English monarchy. Architect, engineer, artist, archæologist, and artisan—the classes of readers for whom we especially write, must all feel this week the sense of a common regret which appeals to our common humanity. For it is no ordinary reign which has this week been brought to a close. It has been a reign remarkable for its length; for the general prosperity which the country has enjoyed; for many great and important reforms in polity and advances in science and in social well-being which it has witnessed; and more especially for the high character of the sovereign who has occupied the throne for so many years. Even to that great majority of English men and women who have never had any direct acquaintance with the Queen, her loss must be felt almost as a personal one. To all but the oldest among us her name has been a life-long association; "The Queen" has been a kind of living symbol of the nation; her name the universally honoured toast on all occasions of festive gathering; the unfamiliar title "The King," which for the last two or three days we have read in the newspapers and on posters, and around which in time the same loyal associations will cluster, seems for the moment almost startling, and as if it belonged to some other country than our own. And throughout this long reign the Queen has merited and obtained the unfeigned and unfailing respect of all her subjects; she has maintained a high standard of social life in her Court; and it must be a melancholy gratification to all English people to notice how universal is the note of respect and admiration for her in foreign countries, even in those which apparently have no very kindly feeling towards us as a nation.

We have no authority for supposing that the Queen took any special interest in art, but it is probable that few sovereigns who ever reigned have taken a deeper and truer interest in the welfare of their country generally; we believe that Ministers who had to see her constantly on political subjects could say much more on this head than is commonly imagined. An idea which some of her perfectly loyal subjects have had, that the Queen, though an excellent lady, was not intellectually gifted, is, we believe, quite a misapprehension. Her two books, it is true, though pleasantly written and interesting, can hardly be said to have evinced literary genius; but that is, after all, only one kind of talent; and we have heard eminent men of letters, whose position brought them from time to time into the Queen's society, and who had conversed with her a good deal, speak with high appreciation of her talent in conversation, the extent and variety of her information, and the keen and enlightened interest she took in all that was passing in the world.

But it is in a moral and political aspect that the Queen's memory will remain most especially honoured by posterity. Called by hereditary succession to the highest office in the realm, she took her place in it with an even greater sense of the responsibilities than of the honours of the position; and throughout a reign—fortunately for the country—of very unusual length, she has left no memory behind her of any act or any influence, political or social, which the nation could regret or which history can call in question. She was an ideal Constitutional sovereign, never attempting to interfere with the government of the country in any manner beyond the scope which the English Constitution allows to the sovereign, but always maintaining an influence on public affairs, felt and acknowledged, we believe, by all statesmen who served under her. And her interest in the social well-being of her people could never be doubted, and has been evidenced over and over again by her public expressions of sympathy and sorrow in any case of misfortune or calamity. In her great position she has maintained a uniformly high standard of public duty and private character; and in this respect all the subjects who mourn her loss, from the highest to the lowest, may endeavour to emulate her example.

THE LAW OF LIGHT.

THE Joint Committee of the Royal Institute of British Architects and of the Surveyors' Institution is to be congratulated on having so speedily come to a decision. Its Report will be found in another column, and, constituted as the Committee was, this document must necessarily command respect and attention. Yet we fear it will be read with some disappointment. As we pointed out in our article* on the subject, after the appointment of the Committee, it is impossible to abolish altogether—as many would wish—the right to light. So clear is this that the Committee do not even discuss the possibility or desirability of such a legal change. It was probably regarded as too academic, but seeing how strong a feeling there is on the part of many competent professional men on the point, it would have been more satisfactory to have received from the Committee a definite pronouncement upon it.

The Report starts by a recommendation on a singularly minor point—namely, the right to an extraordinary amount of light, or, as it would be more properly expressed, the right to light necessary for a special or extraordinary purpose. As many of our readers are aware, this very point has lately been much before the Courts, and the tendency of recent judgments has been towards its limitation. That legislation in this direction is desirable there can be no doubt, but it would cover but a very small part of the subject.

It is certain, as all architects and surveyors know, that the law of light gives rise to not a little abuse; this has been summed up in the word "blackmail." We look, then, with no little interest to see how the Report proposes to keep the law from being used for unrighteous purposes. We must confess to considerable disappointment.

The owner of the dominant tenement who considers that his ancient light is likely to be interfered with is to have the right to inspect the drawings of the servient tenement, or if none exist to be informed of the intentions of his opponent. If his apprehension is justified he is to serve a notice on the owner of the servient tenement. For the several steps we refer our readers more particularly to the fifth and succeeding paragraphs of the Report. But it seems clear that it is not intended by the proposed Act to prevent the owner of the dominant tenement from proceeding in a court of law if he so desires. If this is so then all the old abuses will be left. In the article to which reference has already been made, we stated it to be our opinion that the remedy by injunction should be abolished—"Abolish the remedy by injunction and the blackmail disappears." If the owner of the dominant tenement can oblige the owner of the servient tenement to demolish his building, so long will blackmail continue. Limit the remedy to damages, and a just recompense for any loss of light will be obtained. Why, as we have already said, is the owner of a right to light to be placed in such unusually favourable conditions? If a railway company takes half the garden of the finest mansion in England, and mars it as a place of residence, damages only can be recovered.

* See *Builder*, June 2, 1900.

Thus, when the Report comes to be considered, it will be found to do little more as regards existing rights than suggest an alternative remedy, which, we must confess, looks as though it would be remarkably costly, and will certainly lead the public to think that the suggested legislation will tend largely to bring grist to the mill of architects and surveyors, for it introduces the surveyor at every turn either as adviser or arbitrator. And there is this to be said—a reasonable owner can now put the matter in the hands of his surveyor to adjust the differences in a friendly and businesslike manner. Is it likely the unreasonable owner will go to the tribunal which is proposed?

Leaving this point, we come to two others. One is that the owner of the servient tenement may prevent the growth of the right to light by serving a notice—we presume to the effect that no right is to be gained—on the owner of the dominant tenement (see paragraph 2 of the Report). This is certainly better than the barbarous practice of erecting hoardings or other obstructions; on the other hand, as the right to light comes from the enjoyment of it, it may seem to the public that the only practical way to prevent it is by stopping its actual enjoyment. In working any fresh regulation considerable care will be required. According to the Report, the notice shall be served on the owner, but there are others than owners interested in these matters. The main point to bear in mind is that any such notice must, if possible, be one which comes, or is capable without difficulty of coming, to the knowledge of any person having an interest in the dominant tenement. There then comes the recommendation that a building erected after January 1, 1905, shall not acquire fresh rights to light when it abuts on a street or highway. It is not easy to see the reasoning which prompts this suggestion, because these rights to light are such as relate to the properties dominant and servient of private persons. The question of the light in public thoroughfares is a matter to be regulated by the Building Acts. Why is the owner of a dominant tenement not to acquire a right to light for apertures which look on to an alley, and yet to obtain it in respect of those which open on to a back yard or garden? This recommendation we regard as impracticable—at any rate in its present form. Moreover, the right in this case seems to be for the public interest, and to diminish it would tend to darken streets and highways. We should have been glad had the Committee based their recommendation on reasons stated in the Report, which would have been stronger had it given the public the preliminary reasoning which we are accustomed to find in Government reports. It would also have been of interest to have known the materials in the shape of evidence and recommendations on which the Report is based. In other words, is it the opinion only of those who form the Committee, or is it the result of the statement of the opinion of competent persons, either architects, surveyors, or lawyers? If it is only the former, the Report will have merely a kind of individual authority; if, on the other hand, it is based on a consensus of general professional opinion, legislation will be much easier and more probable.

The first two recommendations, if entrusted to a competent draughtsman, and pressed on the attention of the Government, may become law, but we are not sanguine, and something must necessarily depend on the manner in which the Report is received by the profession. After stating that "the law and practice of ancient lights is exceedingly unsatisfactory," one would have expected that the Committee would have given the public a Report of a somewhat more seasoned and more far-reaching nature.

THE NEW RAID OF THE WATER COMPANIES.

THAT the inhabitants of the greatest city in the world should at this time of day be dependent for an absolute necessary of life and health upon private companies who are working and selling water in the interests of their shareholders only, is something so monstrous that it is astonishing that there has not, long ago, been a public appeal to Government to put an end to it. And connected with this central anomaly is the minor but most vexatious annoyance arising from the petty tyranny which the water company has power to inflict upon householders, especially those of the poorer class, by domiciliary visitations and by arbitrary requirements to renew this and that fitting, often with no reason except that it does not tally with a doctrinaire notion of the company's in favour of some special form of fitting; with the option of having the water cut off unless the order is obeyed. That any Government should ever have given such a power as that to private companies is something which, with our present lights, seems almost incredible. For just imagine what cutting off water from a household really means; depriving people of a necessary element of ordinary sanitary living, a state of things the ill effects of which may extend beyond the household immediately concerned, by setting up an insanitary centre; and consider that this is to be done because a householder declines to comply with a possibly perfectly arbitrary and unnecessary demand of the company.

The water companies, however, are apparently not even satisfied with their existing powers of household interference and tyranny; and while they are at present, probably, the most unpopular bodies in existence, and while their suppression is, we trust, not many years to be delayed, they are demanding new and more extended powers of interference to enable them further to trample on the unfortunate consumer who is compelled to be their client, because they have acquired a monopoly in a necessary of life. As a piece of policy, it seems, it must be owned, singularly ill-timed even in the interests of the water companies, that while every sensible person is crying out for an end to be put to their rule, they are deliberately taking steps to make themselves still more obnoxious, and to impose still heavier burdens on the unfortunate consumer.

These new demands are to be discussed at a Conference of the representatives of the City Corporation, the City of Westminster, and the Councils of the Metropolitan Boroughs, called for Friday afternoon of this week. It is to be hoped that a strong line will be taken by the meeting in regard

to these new demands, and that resolutions will be passed such as will at least tend to prevent their ultimate adoption.

The new clauses have been printed, in view of the intended meeting, with an opposite column of criticisms or suggestions which have been already made by various Borough Councils, or by the "Conference of Borough Councils South of the Thames" (indicated by the letters B.C.S.T.). The first objectionable clause we come to is in the second paragraph, under the heading "Definition of Communication Pipe." By the alteration of one word, the substitution of "ball" for "stop," the ground is cleared for a new raid into the consumer's house. The communication pipe was formerly defined as "the pipe which extends from the district pipe, or other supply pipe of the company, up to the stop-valve;" *i.e.*, the stop-cock which is to be placed on the main near where it enters the building. It is now to read "up to the ball-valve," so that all the length of pipe within the house up to the ball-valve of the cistern is placed under the company's surveillance. The Hammersmith, Paddington, and Chelsea Councils all enter objections to this. The full object, however, of this insidious alteration is not perceived till we come to the fifth clause, which reads:—

"*Defective communication pipe.*

5. Any existing 'communication pipe' which is not as prescribed by these regulations, shall, when it becomes defective, or requires repair, be replaced by a lead pipe of the prescribed weight."

So that by this regulation the companies seek to have the power, on the notice of anything which they consider a defect in the rising main, to compel the tenant to re-instate the whole length of it with new lead piping. This is strongly opposed by the Councils of Woolwich, Hammersmith, and Paddington.

The companies seek, further, to impose a pattern of their own for every fitting in the tenement. The connexion with the companies' mains is henceforth to be made not only "by a ferrule or stop-cock of a pattern approved by the company," but a long schedule is given of the required weights and dimensions of every portion of the work for four different sizes of waterway. Wandsworth Council and the B.C.S.T. comment bluntly—"delete this regulation;" and with reason. But this is surpassed by the following, numbered 18, and which is entirely new:—

"*Weights and dimensions of stop-valves, draw-taps, and bath apparatus.*

18. Every screw-down stop-valve, draw-tap, and bath apparatus shall be fitted with loose valves (such valves shall be lifted by the spindle, and shall not be dependent upon the pressure of the water for opening), and shall be fitted for cold water with washers of oil-dressed leather, and for hot water with washers of vegetable fibre of the best quality, or other material approved by the company. The word 'inlet' shall be distinctly marked on the inlet side of the stop-valve, and such stop-valves for attachment to lead pipe shall be made with screwed ends and unions. The spindles shall in all cases be of gun metal, but all other parts may be of brass of good suitable quality. Every stop-valve, draw-tap, and bath apparatus shall be of not less than the following weights and dimensions—."

And there follows a tremendous schedule laying down the dimensions of every portion of every possible valve and tap. It is something perfectly unheard-of. Imagine the power for oppressing the consumer which would thus be put in the hands of the officials of the companies; officials who, as many persons can testify, are even now only too ready to manufacture complaints about fittings, and to report things as defective which are not so. And is it even certain that the fittings approved by the company will be better than those they displace? We know of one instance where a householder, at the requirement of the company, sacrificed two existing ball-taps which were working well but which they declared to be of a bad pattern, and substituted two stamped with the company's seal, with the result that one of these is constantly sticking down and letting the water through. A final touch is given to these astounding demands by the provision (paragraph 15) that the company may make a charge for testing fittings; *i.e.*, fittings are to be renewed at the pleasure of the company and at the cost of the householder, and the householder is to pay the company for testing them, such test being made solely in the interests of the company and its shareholders! The force of impudence could not go further.

A further trap is prepared for the consumer in paragraph 42, relating to "existing fittings," which states that "when any such fittings become defective and cannot be sufficiently repaired, they shall be replaced with fittings prescribed by these regulations." Those who have had any experience of the ways of water companies' officials will have no doubt how readily all their existing fittings will be "found to be defective."

There are two more points of perhaps more importance than any others, to be considered in connexion with these proposed regulations. One is that relating to cisterns, which is entirely new, and runs as follows:—

"*Cold-water storage cisterns.*

19. Every house (or in case of flats each suite of rooms) supplied by the company shall, except with the consent of the company in writing, under the hand of their secretary, be provided with a cold water storage cistern or cisterns of sufficient capacity to contain in the aggregate at least twenty-five gallons of water for each room. Each outlet-pipe from such cistern or cisterns shall be carried up inside one inch above the bottom of the cistern, and such outlet-pipe shall be commanded by an efficient screw-down stop-valve, placed in a readily accessible position, within one foot of such cistern, and a draw-off tap from same shall be provided. In no case may there be any connexion between the draw-off pipe from the cistern and the supply or communication-pipe."

This demand for large storage cisterns is directly contrary to all sanitary opinion of recent years. It is exactly because large cisterns are a sanitary evil that constant service has been recommended and has been to some extent enforced on the water companies. Now they come forward and demand the very thing which constant service was to render unnecessary. And what is the object of this demand for large storage systems? Obviously it is to enable the companies to break or withdraw constant service whenever it is convenient to them, without the consumers finding it out. We are glad to see that this proposal has met with specially strong opposition from several of the District Councils, especially those of Woolwich, Hammersmith, and Shoreditch.

Another point in the proposals gives an opportunity, which we hope will be taken advantage of, to re-open the question as to the amount of flush to water-closets. Paragraph 34 of the proposed regulations repeats the existing regulation, with some modification in the wording, which forbids a larger flush than two gallons. How the companies ever obtained the permission to adopt this regulation, in face of the unanimous opinion of all the sanitary expert witnesses that it was not sufficient—what authority was "got at" on the occasion—is one of those mysteries which we shall probably never know the solution of. But we observe, in connexion with this point, that the Councils of Wandsworth, Woolwich, Chelsea, Hammersmith, and Paddington, as well as the "B.C.S.T.," all concur in expressing the opinion that a two-gallon flush is insufficient. It is to be hoped that they will have the courage of their opinions, and will take this opportunity to get this insanitary regulation quashed. In that case some good will have been done by these "proposals," and we shall have the additional satisfaction of seeing "the (water) engineer hoist with his own petard."

In conclusion, we may say that all householders and consumers in the London water district ought to combine to resist the adoption of these proposed regulations, which will put in the hands of the water companies a power of oppressing the consumers, and causing irritation and unnecessary expense to them, far beyond even that which they possess already. It really seems as if in putting forth such proposals, the water companies had been anxious, out of sheer bravado, to show themselves in the worst light, and intensify the feeling of dissatisfaction—or something much stronger—which already exists against them.

NOTES.

The Institute Prizes.

WE have received one or two letters from Soane Medallion competitors complaining of what they consider the harsh proceeding of the Council of the Institute in withholding the prize this year, when there were so many competitors. But we consider the Institute were perfectly justified in their action. It is not quantity but quality that counts in such a competition; and there was no design sent in which came up to the standard which might be attained, and which has been attained in Soane competition designs in former years. The best way to raise the competition to its former high standard is to show that the medal is not to be easily won, and to withhold it when no design comes up to the desired standard. In awarding a money prize to those who were considered the three best competitors, the Council were probably influenced by the desire not only to give the competitors something for their trouble, but also to afford a practical proof that the withholding of the prize was not influenced by any economical considerations. At the same time we do not think the selection of the three designs by "Ars," "Hiawatha," and "Ionic" *ex æquo* was quite justified. The two first were rewarded for merits of plan and design, the last for fine drawing; for apart from the drawing "Ionic's" design presented only rather commonplace features, while the plan was exceedingly defective. Drawing counts for something, but it should not be put on a level with plan and design. In the award of the Tite Prize we think a mistake has been made; the first and

second prizes should have been reversed. The design to which the second prize has been awarded, while quite within the lines of Tite's bequest, shows real originality, while the other does not.

Party Walls.

THE case of Roe *v.* the Aërated Bread Company, Limited, which was recently decided by Judge Edge, and is reported in the *Land Agents Record* of January 19, is a useful decision. It has not, of course, any value as a precedent, except in so far as other judges may regard it as stating the law with accuracy. The question was a very simple one. A party-wall had in it an old crack, but for the purposes of a party-wall under existing circumstances it was a good wall. The company, however, required to enlarge their premises, and when this was done the wall would require to be rebuilt, and it was contended by them that the appellant should pay a part of the cost of rebuilding the wall because it was "defective or out of repair" within the meaning of Section 95, Sub-Section 2, of the Building Act, 1894. The judge held, however, that this contention was wrong, and that the Legislature did not intend that there should be a joint bearing of expense except when a party-wall must be rebuilt in order to enable it to perform its existing functions. This is obviously common sense; otherwise one owner might have to pay a large sum of money not for an operation which was for the joint benefit of himself and the other owner, but solely for the benefit of a man who wished to enlarge his premises.

Cooper's Hill College.

IT is certainly very surprising to find the India Office, at a time when on all hands it is admitted that one great need of the country is technical education, take a step which seems to be adverse to it. Cooper's Hill College is admittedly a successful engineering school, and it is self-supporting. To the ordinary man it would seem to be desirable not only to leave things as they are there, but if possible to enlarge the operations. But the Government, as many of our readers are probably aware, has given notice to several of the professors to leave at Easter, and is bent on limiting rather than enlarging the scope of the College. So far as it is possible to judge from the materials before the public, there is absolutely no ground whatever for this action on the part of the Secretary of State for India. Unless this action can be justified, it will be the duty of Parliament to prevent this blow to technical education. If it does not, it will be obvious that it is useless to hope that this country will not fall behind its rivals in many forms of science and technical knowledge. In Cooper's Hill there exists an institution which may become the nucleus for a much larger scheme of technical education.

Alternating Electric Currents.

THE paper read to the Institution of Electrical Engineers last week by Mr. Mordey described some of the difficulties which will have to be overcome by electrical engineers before they can distribute power economically over wide areas. One of them is the charging current which the concentric mains take even at no load. The inner and outer concentric conductors act like the two coatings of a Leyden jar to one another, and since with alternating currents the pressures are always altering in magnitude and sign at a rate proportional to the frequency of the alternating current, we get a large current flowing in and out of the mains due to this action. Now, it has hitherto been considered that this condenser current requires little power to drive it, but Mr. Mordey found that a cable five miles long required about two horse-power to keep it charged at 2,000 volts. At 20,000 volts, the pressure at which it is proposed to work some of the new large central power stations, the loss would be one hundred times as great—that is, 200 horse-power. Now this loss would always be going on, night and day, and so would be a very serious item in the year's expenditure. In the discussion Professor Ayrton questioned the accuracy of the meter with which Mr. Mordey made his measurements. In our opinion, however, the meter read correctly, but the cables experimented on were not the most suitable that could have been got. In alternating current work it is essential not only to use a material between the two conductors which is a good insulator, but it must also have a small dielectric constant. Mr. Mordey's paper is a most timely one, as it is for the good of the industry that the difficulties which electricians will experience in distributing energy from the new central power stations be thoroughly discussed beforehand. It is to be hoped that there will be no repetition of the rash and expensive experimenting which marked the opening of the Deptford station.

York Castle.

THE War Office authorities have arranged to take over the prison buildings in the Castle, which are no longer needed for civil purposes, and to convert them for purposes of a military prison for the North-Eastern and North-Western Districts, with room for 155 prisoners in lieu of the civil prison buildings at Kendal which they have lately returned to the Prison Commissioners. Within the present and enlarged area of the Castle precincts, covering four acres and surrounded in 1836 with a wall 35 ft. high, stands the male debtors' prison erected in 1701-8; opposite the County Assize Courts, built in 1765-77 upon the site of the old Assize Hall (1673), stands the female debtors' prison, 1780—the two buildings having been planned and designed by John Carr, and enlarged in 1803 by T. Atkinson the elder. At the north-east angle are the Governor's house, 1833, and the county prison for felons, consisting of the four blocks and the massive towered gateway, erected in 1826-30 after P. F. Robinson's plans and designs. The alterations cost, in all, a sum of about 225,000*l.* York Castle stands in the south portion of the city, just within the confluence of the rivers Ouse and Foss, at the east end of Castle Gate. There are portions of, it may be, early twelfth-century work in the wall of the lower ward, overlooking the Foss, but the round towers are of a time not earlier than that of Henry III. On a high artificial mound within the later enceinte is Clifford's Tower, built early in the thirteenth century on a plan of four engaged drums whose walls are from 9 ft. to 10 ft. thick; the court within, in which is the well, has longer and shorter diameters of 64 ft. and 45 ft. respectively. The drums meet one another in the shape of a quatre-foil; they rise to a height of 40 ft. Above the first floor are hanging turrets or closets that project at three of the angles of intersection. At the fourth angle is a projecting rectangular bay, of which the lower stage forms the entrance and the upper stage a small bed-chamber or chapel, which is arcaded and ornamented with dog-tooth moulding. Two rounded staircases give access to the top. (Confer also Edward King's account, with drawings and plans, in "Archæologia," Vol. vi., 1782.) The Castle and tower were at one time strongly defended with a deep moat crossed by drawbridges, and being vested in the Crown, served during a long period as the High Sheriff's official residence and strong-house. Clifford's Tower, after its damage by a fire in 1684, and some other buildings were taken for the county gaol. In 1836 was built the wall, about 3,300 ft. in circuit, that included the later buildings within the Castle precincts, and at the demolition of the city gaol in 1878 the Castle became the city and county prison.

Lord Wemyss on Restoration.

THERE has been some discussion recently as to a proposal to restore Haddington parish church, and Lord Wemyss contributed to the *Times* last week a letter on the subject which is certainly rather amusing, without being intended to be so. It appears that the minister of Haddington, in appealing for funds for the restoration, referred to the example set by Lord Wemyss, who had restored the stone tracery of one of the windows of the ruined transept. But Lord Wemyss is indignant at being thus accused of restoration. He says—"It was not with a view to the restoration of the ruined portion of our abbey church that I did this, but to embellish and perfect the ruin." This is certainly one of the most original distinctions we ever heard of. Most restorations of ruined buildings are made with the intent "to embellish and perfect the ruin;" that is just where the mistake lies. Ruins that are "embellished and perfected" cease to be ruins. Lord Wemyss seems to have imagined that the ruined part of the church would be improved by the addition of modern imitation Gothic tracery; but when other persons, not unnaturally, quote his example and wish to carry the same principle further, he is shocked, and rebukes them.

Martin's Pictures.

MR. E. WAKE COOK, writing in the *Times*, blames the Royal Academy for omitting, in their show of paintings by artists deceased during the last fifty years, to give any example of the works of John Martin. It is perfectly true, as Mr. Cook says, that Martin had a great power of representing vast architectural perspectives, and had he confined himself to such architectural compositions he would have had a *locus standi* as an eminent artist in that class of work. But these architectural compositions were merely the scenic setting for Apocalyptic scenes which were puerile in conception, violent in colour, and full of badly-drawn figures. If his "Last Judgment" with its millinery angels blowing trumpets, or the "Plains of Heaven," with the figures fluttering in gauze drapery and the gilded barges on the celestial lake, were brought out again now, they would only excite ridicule. Martin appealed to the artistically

uneducated section of the religious public, and had his reward in his day. His reputation is out of date now.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

DIFFICULTIES AND HINDRANCES IN PRODUCING GOOD MODERN ARCHITECTURE.

AN ordinary general meeting of this Institute was held at No. 9, Conduit-street, Regent-street, W., on Monday evening, the President, Mr. William Emerson, occupying the chair.

Mr. Alexander Graham, hon. sec., announced with regret the death of Mr. J. J. Burnet, of Glasgow, who was elected a Fellow in 1876. Mr. Burnet, who had reached the advanced age of 87 years, took, by his work, a very high rank amongst the architects in Scotland. It would be the wish of the meeting that a letter of condolence be sent to the relatives of their deceased colleague.

This having been agreed to,

The Secretary, Mr. W. J. Locke, read the Deed of Award of prizes and studentships for 1900-1901, made by the Council in accordance with by-law 60. The Deed of Award is as follows :—

Prizes and Studentships.

THE ROYAL INSTITUTE SILVER MEDALS.—(i.) *The Essay Medal and Twenty-five Guineas.*—Three essays on the Comparative Desirability of the Formal or Irregular Treatment of Street Architecture in Large Cities were received for the Silver Medal under the following mottoes:—1. "For Truth and Dignity." 2. "Modus in Rebus." 3. "Per Ardua." The Council have awarded the Silver Medal and Twenty-five Guineas to the author of the essay bearing the motto "Modus in Rebus," Mr. A. M. Watson (London), and a Certificate of Honourable Mention to the author of the essay bearing the motto "Per Ardua," Mr. William Curtis Green (London).

(ii.) *The Measured Drawings Medal and 10l. 10s.*—Eight sets of drawings were sent in, of the several buildings enumerated, and under motto, as follows :—1. Archer (St. John's Church, Westminster). 2. Cannon (device) (Burghley House, near Stamford). 3. Cross Keys (Walpole St. Peter's, Norfolk). 4. Petrel (Holy Trinity Church, Hull). 5. Roda (Church of St. Magnus, Fish-street Hill). 6. Semper Fidelis (Guildhall, Exeter). 7. Stafford Knot (Kirby Hall, Northants). 8. Tressilian (Stoke Priory Church). The Council have awarded the Silver Medal and Ten Guineas to the delineator of Kirby Hall, submitted under the motto of "Stafford Knot" (Mr. Lawrence L. Bright, Nottingham) and Medals of Merit and Five Guineas each to the delineators of St. John's Church, Westminster, and Burghley House, submitted under the motto of "Archer" (Mr. Wyatt Papworth, Maida Hill, W.) and device of a "Cannon," (Mr. Henry Francis Traylen, Stamford) respectively.

THE TRAVELLING STUDENTSHIPS.—(i.) *The Soane Medallion and 100l.* — Twenty-two designs for a club house in a large city were submitted. The Council regret that they are unable to award the Soane Medallion, but they have voted sums of thirty guineas each to the authors of the designs submitted under the mottoes of "Ars," Mr. M. J. Dawson, Bayswater, W.; "Hiawatha," Mr. H. Munro Cautley, Westerfield, Ipswich ; and "Ionic," Mr. J. B. Fulton, London, respectively.

(ii.) *The Owen Jones Studentship and 100l.*—Six applications were received for the Owen Jones Studentship from the following gentlemen :—1. E. Bennett. 2. D. T. Fyfe. 3. James McLachlan. 4. Percy E. Nobbs. 5. Hervey Rutherford. 6. Ramsay Traquair. The Council have awarded the Certificate and (subject to the conditions, among others, that the said candidate devote a tour of not less than six months' duration to the improvement and cultivation of his knowledge of the application of colour as a means of architectural expression, and furnish the Council with an original design in coloured decoration of a prescribed subject) the sum of One Hundred Pounds to Mr. J. Hervey Rutherford, Edinburgh, Medals of Merit to Mr. Percy E. Nobbs, M.A., Edinburgh, and Mr. Ramsay Traquair, Edinburgh, and a Certificate of Honourable Mention to Mr. Edward H. Bennett, Paris.

(iii.) *The Pugin Studentship and 40l.*—Nine applications were received for the Pugin Studentship from the following gentlemen :—1. H. Comyn. 2. James C. Cook. 3. Henry Wm. Cotman. 4. Shirley Harrison. 5. Frederic J. Horth. 6. C. B. Pearson. 7. Harry Phibbs. 8. A. J. Pitcher. 9. J. Forbes-Smith. The Council have awarded the Medal and (subject to the condition, among others, that the said candidate devote a tour of not less than eight weeks' duration in some part of the United Kingdom to the study of mediæval architecture) a sum of 40*l.* to Mr. Henry Wm. Cotman, Streatham Hill ; a Medal of Merit to Mr. J. Forbes-Smith, Edinburgh ; and a Certificate of Honourable Mention to Mr. A. J. Pitcher, Worcester.

(iv.) *The Godwin Medal and 40l.*—One application was received for the Godwin Bursary from the following gentleman :—Mr. S. C. Stephens, Birmingham. The Council have decided not to award the Bursary this year.

(v.) *The Tite Certificate and 30l.*—Twenty-six designs for an entrance gateway to a public park were submitted. The Council have awarded the Certificate and (subject to the condition, among others, that the said competitor, after an absence of not less than four weeks, shall submit satisfactory evidence of his studies in Italy) a sum of 30*l.* to the author of the design bearing the motto "Corona" (Mr. William Fairbairn, Edinburgh), a prize of 10*l.* 10s. to the author of the design bearing the motto "St. George" (Mr. Ralph Knott, Chelsea), and a Certificate of Honourable Mention to the author of the design bearing the motto "Marble Arch" (Mr. W. Arthur Mellon, Ashwell, Herts).

PRIZE FOR DESIGN AND CONSTRUCTION.—*The Grissell Medal and 10l. 10s.*—Eighteen designs for a timber footbridge across a stream were submitted. The Council have awarded the medal and ten guineas to the author of the design bearing the motto "Pons Asinorum" (Mr. Edwin Forbes, London).

THE ASHPITEL PRIZE, 1900.—The Council have, on the recommendation of the Board of Examiners (Architecture), awarded the Ashpitel Prize (which is a prize of books value ten pounds sterling, awarded to the candidate who has most highly distinguished himself among the candidates in the final examinations of the year) to Mr. Shirley Harrison, of Leicester. The Council have further awarded extra prizes of five guineas each to Mr. C. H. F. Comyn and Mr. C. E. Varndell, who passed the final examination in June, 1900.

THE TRAVELLING STUDENTS' WORK,—*Owen Jones Studentship, 1899.*—The Council have approved the drawings and design executed by Mr. John Stewart, who was awarded the Owen Jones Studentship for 1899, and who travelled in Italy, Greece, and Spain.

Pugin Studentship, 1900.—The Council have approved the work of Mr. James McLachlan, who was awarded the Pugin Studentship for 1900, and who travelled in Norfolk, Lincolnshire, Northamptonshire, and Warwickshire.

Tite Prize 1900.—The Council have approved the work of Mr. Percy Erskine Nobbs, who was awarded the Tite Prize for 1900, and who travelled in Italy.

Mr. J. J. Stevenson, F.S.A., then read a paper entitled "Difficulties and Hindrances in Producing Good Modern Architecture," of which the following is an abstract :—

Mr. Stevenson said that the difficulties besetting modern architects were due to the conditions of modern life as compared with those of former times. The hindrances were the laws and regulations which restrict practice and the natural development of building. Traditional architecture did not cease with the new life of the Renaissance, and though the mediæval styles lived on, the new architecture soon became a custom and tradition which every workman knew and could carry out without drawings from an architect. It is only in the last two or three generations that architecture has emancipated itself from tradition ; that builders and architects, instead of conforming to established custom, have followed their own fancies and have done what was right in their own eyes, every man being a law to himself. Instead of the few whose force of genius broke through tradition and made an advance in the style, each architect and builder now thinks he must be original, and as original genius is scarce, so are good buildings. The best hope for new architecture is a thorough knowledge with the old, not a superficial acquaintance with many different styles. The style must be assimilated so that the architect can think in it and use it as he does his native tongue.

It might be thought that competitions, with an architect of standing as assessor or as judge, would secure good architecture by criticism and selection of the best designs. But the result has not justified the hope, and there is now a tendency to abandon the system. In a competition the architect works in the dark ; he has to guess what is wanted, and no information the assessor can give in his instructions to competitors can adequately supply it. Architects whose local standing might have entitled them to be appointed for the work, who possibly know more of the conditions and requirements than the assessor, hesitate to be judged by their drawings alone in competition with some young unknown architect from a distance who, if he is successful, has no character to maintain in the district. Sometimes the assessor is one whom architects may fairly decline to be judged by. They may know that he does not understand their art, and his instructions may show that he is ignorant of the requirements. In these he takes a power of decision more absolute than judges in law cases ever claim ; they decide only after hearing both sides of the case, and they give reasons for their judgment. But the assessor hears no pleadings and gives no reasons for his judgment. Might not his proceedings be in some degree assimilated to those customary in law cases? The competitors, having studied for months the problems involved, would be able to point out to him how far their plans had solved them, and where their opponents had failed. It is possible that, however fair and able, the assessor may have missed them. They should not be condemned unheard. As to the objection that the assessor would thus know who the competitors were, and might be influenced to give the award to a favourite or a friend, such a suspicion amounts to a libel on the assessor's character. It would be more dignified for the assessor to declare himself incapable of such action by making the decision, knowing who the authors were. It might prevent his overlooking merits in the plans of architects whose character and reputation and the work they had done are a guarantee that they could be trusted to carry out the work. By refusing to know the competitors, the assessor neglects what is a far more important consideration in the selection of an architect than making competition drawings. The faculty of winning competitions is often not a gift of the best architects. The selection of the assessor is the most important factor for the fairness of a competition. Why should not the competitors appoint him by their votes? It would give a better guarantee that they could trust him to understand and appreciate their designs, and if the majority appointed one whom they thought unlikely to do so, they would be able to withdraw before wasting their time and risking their reputation. There would be a better chance of just decision if there was more than one judge, as in important cases in the Law Courts. Opinions vary as to what constitutes good architecture ; different views of what designs are best may honestly be held. A judge may see fit to alter his opinion on the representations of his colleagues. As regards the labour and money risked by competitors, there should be a stipulation that architects invited to compete should each be paid a sum towards their outlay. Competitions, wisely conducted, might advance the art and produce good buildings. They should be made such that other architects than those who usually gain them would not hesitate to engage in them ; that work done as well as the accidents of competition drawings should be an element in decision ; that the judges should have the confidence of the competitors for their appreciation of art in architecture in the various developments now prevalent.

In considering the hindrances in producing good architecture the author referred to the modern rules and regulations by whch the designs of buildings are hampered and restricted. These have generally been devised by doctors and sanitary experts for excellent and necessary objects. But instead of availing themselves of the knowledge and experience of architects they devise crude and often tyrannical rules without adequate knowledge of building construction, and without thought as to the architectural appearance or the cost of their requirements. The London Building Act would have been a far more effective measure had the County Council arranged with a body of architects, such as the Institute, the provisions for ensuring the necessary requirements, and the 20,000*l.*

Parliamentary expenses would have been saved. The Local Government Board's Model By-laws ignored local modes of building, and reduced houses all over the country to a uniform level of dulness. The recent Police Act for Scotland, to ensure ventilation, decreed that ground-floor ceilings should be 9 ft. 6 in. high, and bedrooms 9 ft. But this did not ensure ventilation; it rather provided space for vitiated air to accumulate. Such regulations spoiled cottage architecture, made buildings needlessly costly—indeed, prevented cottages being built. Equally foolish and costly is the regulation that every sleeping-room over 100 ft. area should have a fireplace and flue, though it would probably never have a fire in it and would most likely be stopped up with a smoke-board. Why forbid half-timber construction? It is a most charming development of old English architecture, and houses so built have lasted for hundreds of years. It gives beauty to landscape, and the risk of fire is insignificant in isolated cottages. The precautions against fire are needlessly oppressive for low or isolated houses. Carrying the party-walls above the roofs in ranges of low houses spoils their appearance, and is unnecessary if the slates are bedded on the walls.

In some rural by-laws the needlessly tyrannical provision that all woodwork should be kept back 4½ in. from the face of the wall has been revived after it had been removed from the new London Act. Another needless regulation, showing ignorance of building construction, is that compelling footings to be put to walls besides concrete foundations, which are perfectly stable without them. In conclusion, the author urged the Institute to press upon the authorities the acceptance of by-laws, ensuring sanitation, ventilation, fire prevention, and stability, but drawn with common sense and knowledge of building, and which would not hamper and ruin architecture and cause needless cost.

After some remarks by Mr. W. Woodward,

Mr. Lacy W. Ridge, in proposing a vote of thanks, said he especially desired to thank Mr. Stevenson for calling attention, in his excellent paper, to those regulations which were so unnecessarily thrust upon architects in country districts. There was some justification for such regulations in London and other big towns, but it was different in country districts, where, however, by-laws, severe and unnecessary, were enacted. The Institute went last year to the Local Government Board and endeavoured to get something done, with the result that they were promised by the Under-Secretary of that day that attention should be given to the matter. There were now new Parliamentary officials at the Board, and it was time the Institute again moved in the matter. The by-laws which had been thrust upon the country districts were totally unnecessary, and a serious evil which not only architects, but many people in country districts were suffering from. The time had arrived when something like a public demonstration should be made on the subject, and influence brought to bear on the new officials at the Board. The permanent officials would not do much unless pressure were brought to bear upon them. Mr. Stevenson's remarks on competitions, also, were very interesting and well worth attention. Much that was so unsatisfactory in our architecture was the result of the system of competition to which the Institute had committed itself—much more than it should have done.

Mr. John Slater, in seconding the vote of thanks, said the paper had been an exceedingly suggestive one. The chief point of the paper was rightly directed to the hindrances which exist at the present time, and which prevented really good architecture being put up in our cities. With regard to the remarks about competitions, the whole gist of those remarks went to show that competitions on the whole are undesirable and ineffective, and it would be a very good thing if they could be done away with. That was impossible, but he ventured to suggest that one improvement on the principle of competitions, which were now so universally acted upon, would be this: instead of public bodies issuing general instructions to competitors, without limit, to send in designs, they should appoint an assessor who should select for the various bodies who wanted designs a certain number of architects to compete; that those selected architects should send in designs, and that the assessor should then decide which was the best. He agreed with Mr. Stevenson that there was no harm whatever in a man who had a position which would justify his selection as an assessor knowing the names of the competitors, and that it would be an insult to the assessor to suggest that the fact that he knew the names would have the slightest influence on his selection or on the selection of the best design. If an assessor were to select the competitors, he would, as a rule, select them not only from among the more experienced men, but from among those younger men whose work he might have seen at the Institute or elsewhere, and whose abilities would give him reason to believe that they would produce designs worthy of consideration. With regard to the hindrances of which Mr. Stevenson had spoken, he (the speaker) perfectly agreed with what had been said by Mr. Ridge, who had confined his remarks more particularly to the laws and regulations of the Local Government Board in regard to country places; but here in London architects were hampered in a most regrettable way by the regulations of the Building Act. It was about ten years ago that he had read a paper before the Institute on building legislation, and he then pointed out, before the Building Act of 1894 had been compiled and passed, the great objections there were to laying down hard and fast rules when dealing with an area which had been covered by buildings for many years. With regard to the 1894 Act he did not think there was a single regulation of that Act to which he would have the slightest possible objection in dealing with new areas which were going to be covered by buildings. When they dealt with existing areas under the Act they were met by hindrances and obstructions in every way, and that prevented good building and perpetuated what was bad, in consequence of the great difficulty there was in getting up new buildings. There was one regulation of the Act which came within his purview very often. Mr. Stevenson had alluded to straight streets, and most of the streets of London were straight, but the Building Act made it very difficult to produce any little variations in the outline as it prohibited projections. He had never been able to understand, and he had never met a District Surveyor who understood, the reason for the restrictions as to bay windows. If you start from the bottom of a basement, you can only carry up a bay window three stories, and "story" was not defined in height. If you put an oriel you can go up as many stories as you please, and he could not understand that. Moreover, they could project a bay window 3 ft., but if, in reconstructing an existing building, they wanted to put up a porch, objections were raised by the District Surveyor, and if they went to the County Council, the chances were they would be refused. He had heard only that day of a most ridiculous objection to bringing out a small bay only one story in height. Such hindrances were real hindrances; they made the streets of London heavy and flat and unarchitectural. He believed there was some talk of the London County Council going to Parliament for various improvements and amendments of the London Building Act, and he was quite certain that if architects could show clearly that some restrictions of the Act were inimical to, and the cause of inharmonious, architecture, it would be possible to get some desirable alterations made when other alterations were being asked for.

Mr. Lewis Solomon said that when a well-known architect such as Mr. Stevenson came before them to speak of difficulties and restrictions they must be very real. The Institute, as he had proposed at a previous meeting, should do something to get these difficulties removed, and, as the members now knew, a committee had been appointed to inquire into the matter.

Mr. W. D. Caröe said he had on many occasions spoken strongly as to the importance of the judge in a competition being entirely independent of the committee. At the same time he agreed with Mr. Stevenson that two assessors would be very much better than one, and he should like to see two appointed, with the possibility of appointing an umpire in large competitions. If the assessor were to be sole judge of the designs submitted, it might, he agreed, be an insult to that assessor to suppose that he would alter his judgment if he knew the competitors' names. But there was another point of view: a great many committees refused to let an assessor be sole judge; they reserved to themselves the final judgment; and it was a matter of great importance that committees of public bodies should not be acquainted with the names of the competitors. But committees would not allow the assessor to know the names of competitors where they did not know them themselves. He agreed with what had been said about rural by-laws and the London Building Act, and he agreed with Mr. Slater that architects ought to take the first opportunity of endeavouring to get certain absurd regulations amended, so as to bring London into line with some of the Northern cities. The matter was of serious importance in rural districts, and since the District Councils came into existence things had gone from bad to worse.

Mr. Maurice B. Adams said they must all feel indebted to Mr. Stevenson for the practical manner in which he had shown that good architecture did not always consist in numberless features. Much of our street architecture was ruined by the numberless features which were introduced by some architects, and if only the architects of some of the buildings in Charing Cross-road and Shaftesbury-avenue had omitted some of the features of those buildings, those streets would have been much more satisfactory. Mr. Stevenson's buildings had often struck him as being distinguished by that breadth and simplicity which was so desirable. With regard to modern buildings in towns, one thing which was detrimental to good architectural effect, and which could not very well be helped, was the use of so much iron. A site in the City might be vacant, and a building was put up for some syndicate or other, the chief concern being that the interior should be as much of a skeleton as possible, so that it might be portioned out with narrow partitions. That seemed to be one of the hindrances with which architects were faced. The only way to deal with iron construction satisfactorily was to recognise it frankly.

Mr. E. W. Hudson said that one difficulty he should like to refer to was, that in London and large towns it was difficult to secure an adequate site on which architecture could really be seen when produced. The way in which buildings were shut in must be present to the minds of all, and it was often impossible to see such buildings owing to an inadequate site. One of the most notable examples of that was the new Law Courts. In the commercial parts of London, that, he supposed, could not be avoided, but with public buildings the country's advisors must be at fault when they crowded a number of offices on to an inadequate site.

Mr. Aston Webb said that all architects suffered from the difficulties which had been referred to. Interesting and thoughtful as was Mr. Stevenson's paper, it was a little pessimistic about modern architecture. It was a great pleasure to him (the speaker) to hear a short time ago one of our greatest architects say, when asked what he considered the finest building in the world, that it was an English building, built within his own lifetime, viz., St. George's Hall. If one of the finest buildings in the world could be produced in our generation, and if in the previous generation the Houses of Parliament (which many competent people would consider to be one of the finest buildings in the world) could be built, there was no need to be so despondent. And it must not be forgotten that both those buildings were the result of competitions, which so many people considered such degrading things, though he would express no opinion on the matter. One of the remedies which Mr. Stevenson had suggested was the study of old work, and most people would agree that the study of old work was essential to the production of new. And yet he would have liked to have heard some other remedy as well held out to the rising generation. Many of them had studied old work for long, and had lived in the memories of some of those fine buildings which had been put up in the last century, and he fancied that the younger men would have to look forward, and, notwithstanding what had been done before, would have to develop some new line. The difficulties and hindrances in architecture were, after all, like other matters in life, one's greatest good. It was the restrictions, the limitations, the difficulties, and hindrances that perhaps brought out one's best energies and best work. When they remembered that the author of the paper read that evening was the architect of the Red House in Bayswater-road they would see that restrictions did not interfere with the production of such an excellent piece of archi-

tecture as that. That there must be hindrances he was quite sure; their work, however pleasurable, must be produced through trouble and pain.

The Chairman said he thought Mr. Webb was quite correct in saying that the paper had been a little pessimistic about the architecture of the present time. He supposed that even Mr. Stevenson could hardly expect that every man of their great profession could be the highest-class artist, but there was a sufficient sprinkling of very clever architects amongst the number, as was shown by the students' work, and the architecture of the present century might not be very far behind the architecture of last century. Mr. Stevenson apparently did not like to be restrained by anything, and that produced an artistic wail against the restrictions of County Councils and local bodies, though with much that Mr. Stevenson had said most of them would agree. With regard to competitions, there was a great deal to be said on both sides of the question. Certainly, in many instances much of the unsatisfactory results of competitions were due to the action of members of the profession themselves, more than to the promoters. If architects would rush into competitions on the most unfair terms they could only thank themselves if promoters did not take the trouble to make fairer conditions or appoint a competent assessor. The Institute did all it could in the matter, and only the other day had written a letter to a committee who had published unfair conditions. An insulting reply was returned to the effect that the Institute's interference was unwarrantable, but the council were able to reply that they wrote in the interests of the profession. He was glad to say the Institute's representations had been successful in a good many cases. In regard to rural by-laws the subject had been before the council that very afternoon, and it had been decided to approach the Local Government Board again.

The vote of thanks having been heartily agreed to,

Mr. Stevenson, in reply, referred to Mr. Aston Webb's remark that it was the difficulties that often made an architect. It was indeed the case that difficulties such as these were to the architect his opportunities, and that all the most interesting things in architecture had been attained by the architect getting over his difficulty. He sympathised with Mr. Adam's remark when he instanced the Shaftesbury-avenue. In the first draft of his paper he had cited Shaftesbury-avenue as an instance of what a modern street should not be from its extreme restlessness. But he cut it out, as he had cut out a good many other things, lest his paper might be too long. Mr. Hudson had referred to the inadequacy of sites. Now, one reason why he had brought the old photographs which hung on the walls for them to see was to show what good buildings they could get, and what splendid effects could be produced, on what a modern man would call perfectly inadequate sites. They were, he thought, quite wrong in thinking that it made a town healthier and finer to have great wide spaces. The Strand was a much finer street than, say, Oxford and Cambridge terraces, and there was something in a point, with regard to the ventilation, which he had mentioned in his paper, but had not had time to elucidate. Better movements of air were secured where there was a wide open space and narrow streets opening into it. The ventilation and æsthetic effects were far greater than where they had, as in Manchester, all the streets of the same width, never one more nor one less. Of course there were difficulties in the matter for the officials concerned; but if it was possible to allow some freedom and variety in that matter, he was certain that was one of the things that would tend to improvement. With regard to the assessor, one speaker suggested that he should be given even more power, not only to decide the competition, but to select the architects to compete. His point was that the assessor had too much power already. It was said as an objection to naming the competitors themselves, that although the assessor might be above suspicion of favouritism, members of the Committee might not be. In that case, again, the precaution seemed to him futile, because, if a member of the Committee wished to favour any one, the person he wished to favour might easily let him know which was his design, and his friend on the Committee could bestow the favour without incurring any discredit for doing so. What was wanted was perfect openness—let everything be above-board; let the competitors put their names on the drawings; let the assessor, whether a judge or an assessor, give his decision and let it be known to the competitors; and he should also strongly advise—try at least what would come of the competitors, when they were appointed and paid, electing the assessor.

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION.

THE usual fortnightly meeting of this Association was held in the rooms of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., on Friday last week, Mr. W. H. Seth-Smith, President, in the chair.

The minutes and some nominations having been read, Messrs. H. Cayley, S. A. Hall, and A. S. Tanner were elected members.

Mr. E. T. Hall then read the following paper on

Flats.

Mr. President and Gentlemen,—When your committee invited me to write a paper to read before the Association on "Flats," I accepted without reflecting on the difficulty of the subject given to me. The title was so short and seemed so simple, but the seeming simplicity of the subject is a delusion.

A house of one story we call a bungalow, but "flat" is the name we give to a self-contained residence on one floor of a many storied house. It is not euphonious, and it is not descriptive. The name betokens a lack of imagination, and it seems to me inept to adopt such a word to describe the abode of a large and increasing number of people. We do not often use the word for workmen's dwellings, but generally only for those of the richer class. We might as appropriately call an ordinary town house a "vertical." However, such as it is, the term is now accepted in England, or at all events in the south. In Paris *appartement* appears to be the accepted designation of such a residence as distinct from *piece d'un appartement*, which designates a room in a set of apartments. In Germany there appears to be no word to distinguish a "flat" from a house proper, *Wohnung* or *Wohnhaus* are applied to both.

I suppose it is not more than forty years ago when flats on any large scale were introduced into London. Among the first, I think, were those stuccoed buildings in Victoria-street, and I can remember how some of them remained for years unfinished, so little or so slowly did the idea take on. This is surprising, because they had long been established in—for example—Paris and Edinburgh, two cities which have had many things in common since, and even before, the days of the Stuarts. In England, however, habits are very conservative, and it took even the relatively travelled people of London a long time before they would accept a flat as a permanent residence. In the provinces to this day there are many cities and towns where no flat is known, as, for example, in go-ahead places like Leeds, Liverpool, Manchester, and Cardiff, to cite places wide apart where there is plenty of energy and activity; and in two or three of these there are not any many storied buildings for the working classes. As illustrating the feeling that prevailed until the decade 1880-90, hardly any insurance company would invest in ground rents secured on flats or lend money on mortgage of such buildings.

From about 1880, however, flats began to move—as the phrase goes—and the projects for their erection steadily increased year by year until we have now a very large number of such buildings in all parts of London and in many of the suburbs. Many people of the well-to-do classes who formerly only hired a house for the season now take a flat by the year in lieu of a town house, to which they can come when they please. With a town house absence means at least caretakers and structural maintenance, whereas a flat may be locked up and the keys left with the porter, on the assurance that all will be safe during the tenant's absence.

It may be interesting for a moment to make a slight digression by noting that the period which has seen the birth, growth, and acceptance of the flat as a residential unit has coincided with the immense development of hotel life in London. I can just remember the completion of the Langham Hotel. I heard people say that it was a mistake to build an hotel of that size, that it would never pay, &c. That was the pioneer of the modern hotels. It was followed by Charing Cross and Cannon-street, Holborn Viaduct, the Grand, the Métropole, the Midland, the Victoria, the Fifth Avenue, the Grand Central, the Russell, and others further afield. The restaurant, too, was of the same period. It is within my time that outside a club or a chophouse there was hardly a place where one could get a decent meal, and certainly no place where one could take a lady except it were to an hotel. There were one or two Italian cafés, but if I remember aright the Holborn Restaurant was the first of any size to astonish the Londoner with its comparative luxury, cleanliness, and good cooking. This was soon followed, and now there are as many restaurants in London probably as in Paris, although not quite on the same lines. However, we must return to our subject.

Accepting, then, the fact that flats as a distinct class of property have taken firm hold of London and consequently afford an extensive field of operations for the architect, let us consider what are the problems to be solved when one has to design a building of this class. First, locality will have something to say. If the site be in a main West End thoroughfare where shops are the essentially lucrative part of the property and have to form the ground-floor or possibly two floors, it will not, as a rule, be found to be remunerative to put family residences above, but bachelor suites generally with one sitting-room, one bedroom, and a bathroom will be found to meet a considerable demand. In the side streets of clubland similar suites, sometimes with a manservant's room attached, will realise high rents. In Bayswater, Kensington, Chelsea, Westminster, &c., flats over shops will as a rule only be taken by the lower middle class, but in blocks which are exclusively residential and of good style there will be a considerable demand from well-to-do people of all sorts who do not wish for the trouble of a large house, the expense of a garden, &c., and who periodically shut up their flat and go away. In Hampstead probably as high rents can be obtained as in Kensington, but in Battersea Park, and still more in places like Brixton and such suburbs the style and the rents must be simpler and cheaper respectively. The locality, therefore, and consequently the class of tenant, will exercise an influence on the whole design.

I have noted that as a rule family residences for well-to-do people will not be readily taken if over shops in a main street in London. It is strange that this objection does not hold in Vienna and Paris, where family suites in the heart of the cities are the rule, and are sometimes sumptuous. I suppose the difference lies in the temperament of the peoples. In England the mistress of the house and the family generally like to have the opportunity of being quiet; "a quiet evening at home" one constantly hears as a phase. In France and Vienna the genius of the people is for bustle, vivacity, stir, and movement. To some natures quiet is appalling and abhorrent. I have before me a book of new buildings in Paris—apartment houses—and of a total of fifty depicted, thirty-four are in main streets and have shops on the ground floor.

Another difference to be noted is that in Paris the rule is to make a service staircase in addition to the principal staircase; in Vienna and London this is not usual, although of course there are many instances to the contrary. In a building with only one principal staircase the service staircase is a great protection in the event of fire, and where the floors are extensive I think should be made compulsory, but it should be at a distance from the other, and should be next an external wall with windows in it to enable the smoke to escape. In some modern and handsome Parisian buildings there are stately principal staircases which are lighted by glazed partitions, or, as we call them, "borrowed lights," from the service staircase which itself has windows. This is bad. If a fire occurred, and the flames went up one staircase, the other would be rendered useless for escape by the breaking of the glass partitions between. When there are two or more principal staircases this fire exit can be made by carrying both or all up to the roof, forming there a fire-resisting passage from one to the other. In St. Ermin's Hotel and Mansions at Westminster, designed by me, where the buildings cover a site of about an acre, and there are some 650 rooms, I have six staircases with such intercommunication. It is

strange that in Vienna very large blocks have sometimes only one staircase with a comparatively narrow passage leading to it from the street through the main block. There is one such on the screen where there are six stories and four suites on a floor.

In London the reason for excluding service staircases is generally the desire to keep tradesmen's boys out of the house, and to avoid the uncontrollable "back door." Very frequently goods are transmitted from the ground floor by small hand-service lifts passing outside the kitchen window or service hutch, and very useful and speedy lifts can be made by using bicycle wheels at top and bottom with ball bearings, wire ropes, and two balanced covered cages or buckets. Apparently in Vienna in many buildings all goods come up the one staircase to the front door.

A further point to observe is the very small kitchens and offices of the Paris and Viennese flats; 13 ft. by 10 ft. appears to be considered ample, and many are much less. There is no scullery, but sometimes a small pantry with sink is attached. This, however, is by no means general, and a larder is still more rare. I am told that, small as the kitchens not unfrequently are in Vienna, it is by no means unusual to find them very handsomely fitted, the walls tiled and decorated with handsome ware. My informant says perhaps 300*l.* is spent in such a way, and the mistress takes her friends to see the kitchen.

Yet another point of dissimilarity from our practice is the fact that in Paris frequently there is apparently no bedroom for the servants within the suite. In some cases the servants' bedrooms for the whole building are on the top floor, although there are many separate suites in the building. I should think a good deal of inter-family gossip is thus exchanged. In Vienna generally one small bedroom for a servant is provided, sometimes opening only from the kitchen. There is on one of the drawings displayed one handsome suite of rooms, with such a bedroom about 45 ft. in area, in another 70 ft. in area. These are not healthy. Certainly 100 square ft. should be a minimum. Of course, I do not know that other rooms may not sometimes be allocated to servants, but having regard to the few bedrooms and the size of the sitting-rooms this does not appear to be probable. In London it is usual to house the servants within the flat, but here, as well as in Vienna, the vice of making a bedroom open out of the kitchen is still practised, and when one reflects that slops have to be carried through the kitchen in times of sickness and of health, it will be seen how insanitary such an arrangement is.

Our friends abroad are not always so particular as we are in other sanitary matters, and you will note on the screens some bath-rooms with no light and not against external walls, larders similarly situated, even behind water-closets, and the evil practice which obtained in England, even within the last half century, is still maintained abroad, of lighting and ventilating water-closets from staircases and passages. Here that is no longer possible, thanks to our sanitary laws, and I feel sure that our friends abroad now realise the evil of such arrangements, and will not be offended at my mentioning the defects should any of them honour me by reading my paper.

I have yet another little sanitary point to mention, and that is the danger of taking soil pipes of flats down inside the building against external and even internal walls in chases. Such chases afford channels for carrying infectious diseases from one suite to another. They are passages for vermin and for sound, to say nothing of the danger if the pipe leaks. Our laws have practically banished this evil from London, although I well remember to have seen it practised in some of our pioneer flats.

Internal staircases, however handsome they may be, with only top light and ventilation, are also to be deprecated in confined areas where there are many stories of flats. Such staircases, in the event of fire, become furnace shafts, and at least get full of smoke, choking those trying to escape. The odours of the lower part of the house ascend to the top, and again illness is conveyed by them from one part to the other. While many will realise the last mentioned evil, it is not all who pay attention to the point I am about to mention, and that is the necessity for a current of air through small internal areas or courts extending from the ground to the sky. These small courts are frequently and not inaptly called "well holes." Now every one knows that the air at the bottom of a well is often so bad that a candle will not burn in it. A "well hole" area without through ventilation is in a lesser degree bad in the same way; and when, as is generally the case, there are gullies at the bottom giving off foul gases from fermenting deposits, it can be realised that windows opening into such areas are merely inlets for poison. All such areas should be ventilated by means of an inlet of large capacity at the bottom from some road or considerable open space where there is always movement of air going on.

Fourteen or fifteen years ago I realised the evil and practised the remedy, and we obtained its insertion in the London Building Act of 1894. I was much pleased to see the necessity for this bottom inlet to small areas urged in a recent letter from M. Poupinel, of Paris, when he was kindly forwarding some of the drawings now exhibited, and it will be seen that he has inlets to his small courts in the houses Nos. 8 and 10 Rue Descamps. M. Poupinel has also taken fresh air flues from the exterior to every fireplace in his building, and he has outlet ventilators in his kitchens. We, in London, are accustomed to outlet ventilators from not only kitchens, but reception rooms and bedrooms, but they are uncommon abroad, and the atmosphere of a stove-heated and unventilated room on the continent is something to be remembered by those accustomed to fresh air.

There is only one further point to mention before leaving this hygienic branch of my subject, and that is the desirability in our cities of having large windows in our rooms and keeping the tops of them reasonably near to the ceiling.

A subject that may profitably engage our attention for a minute or two is the construction of the floors. In all high buildings for many families the floor should be of fire-resisting material. Some years ago Mr. Evans patented a floor which was composed of ordinary wooden joists laid close together and well spiked thus making a solid wood floor. I do not know what has become of the system, but its tests showed it to be practically impervious to fire, and from its fibrous character it was claimed to be sound-proof. Another mode of constructing a floor is to fix rolled steel joists and build 4½ in. thick brick arches between. This used to be the most common method of construction in London, and it is still much used in Vienna. We see it shown on one of the exhibited designs. Above the brickwork were wood joists and an ordinary floor. The most common because cheapest method used in England is, however, to place rolled steel joists at regular intervals, generally 2 ft. apart, and to fill the space solid with concrete made of cement and coke breeze, bringing the soffit of the concrete an inch or two below the joists to protect the steel from the direct action of the fire. Frequently small fillets of wood were, and sometimes still are, laid on the concrete, and the boards nailed to the fillets; without ventilation, however, if the floor is covered with linoleum, such fillets and the boards over them may decay from dry rot, and the same remark applies to linoleum laid on boards nailed direct to concrete. One objection to the solid concrete floor is that it is not impervious to sound. The only way to remedy the evil is to get an air cushion beneath the floor itself, and to suspend the ceiling. There are several ways of doing this. To get over the difficulty regarding wood floors where these are intended to be covered, I have in many recent buildings dispensed with boards, trowelled the floor with cement, and covered this with linoleum, either plain or ornamental. At once a furnished appearance is given to the floor, and rugs or carpets look well on it. The material is pleasant to the tread, it is not so resonant as wood, and there are no joints in which vermin may harbour.

I much fear that so much detail is wearisome, and yet it is valuable, and for the most part essential to an architect to know it all before he can start to make a good design with the hope of getting a successful result.

Turning now to the æsthetic side of the subject, let us consider the block plan. First of all, do not crowd too much building on your land. Doubtless a site that is crowded will show a large rent-roll on paper, but the building will not in the end be so popular as an open and more airy and consequently more healthy block, and the rents of the former will have to be reduced. Of course the shape and extent of the site will largely determine the block plan, but for our purpose we will assume a considerable area to be at our disposal. It may be laid out with a large carriage quadrangle in the centre, as in the examples on the screen of (1) No. 87, Boulevard St. Michel, or (2) No. 32, Rue la Boëtie, both belongng to Le Nord Assurance Company, the architect being M. M. J. Nerrot. In these the entrances are from the courtyards. In Mr. C. J. Pawley's, St. James' Court, Westminster, we get one large courtyard with a narrow roadway on each side leading to it behind and through the front block.

Another type is where the main entrances are from the roadways, as, for example, Der Habighof, Vienna, Herr H. Adams, architect. Here we have as characteristics two blocks parallel to the Haupstrasse and one facing the side street. The internal courtyards are used merely for light and air. There is a third method, as at St. Ermin's, Westminster, where the buildings are U-shaped, the large central quadrangle being open to the south or main front. This open quad may, however, be at the back if the aspect is more suitable at that side. This third method is shown in Mr. Paul Hoffmann's recent buildings, 171-5, Queen's-gate. The enclosed quadrangles permit of more land being covered than where the fourth side is left open, but the latter scheme has many other advantages. Even, however, on a comparatively small site a very pretty effect may be obtained by having a central circular carriage court, partially glass roofed, over the ground floor, the area above being open for lighting and ventilating the staircase and rooms. An example of this may be seen on the walls.

Coming to a consideration of the internal planning of the buildings I think a good public entrance hall on the ground floor is a *sine quâ non*. The porch and vestibule should be simple, and may be plain. The hall should be spacious; not a mere passage, but a good room, well lighted, the walls panelled in wood to a considerable height, having a large, hospitable fire, and a panelled ceiling. Personally I do not like the "gorgonzola" and other marble wall effects which are so frequently seen in modern blocks. They are not, I think, in harmony with essentially domestic buildings, and I prefer the more cosy effect of a good hall in a country house. Of course columns may enter into the composition with great advantage, and any scheme of colour.

The position of the staircase must of course be governed by the shape of the site, but if it can be made a part of the hall scheme so much the better, as it produces an effect of spaciousness which is valuable. I would draw attention to the very general feature abroad of staircases planned as semi-circles, ellipses, or on other curved lines. The result is very pleasing, and contrasts favourably with the straight flights of stairs in a rectangular space so frequently seen. I do not like curved flights of stairs to extend without any intermediate landing, from floor to floor. These appear to me rather monotonous, as well as tiring and dangerous. They are, however, common in Paris.

I think the best planning, internally, is where on each floor there is but one flat off a main staircase. Such a flat is more private, and gives an idea of not being limited by its neighbour. There may, of course, even with this arrangement be several staircases within the building itself, and several flats on a floor. Of course "the one staircase one flat" idea would only be practicable when the flats were of considerable size. When there are family suites, each of but five or six rooms, one staircase may reasonably serve two suites on each floor. This gives a certain elasticity to the place, as two small suites may then be combined and let as one large one. In high buildings I think it is not desirable to have a greater number of flats on a floor to one staircase Mr. Hoffmann, at Queen's-gate, has his centre block with one flat to a staircase, and the wings with two flats to a staircase. The plan is an excellent example of how to lay out a large site. In the Avenue Ledru Rollin, No. 68, M. Montalto gives another good U-shaped plan, with the quadrangle at the rear and two flats to a floor. The site is out of square, but the planning is admirable, and all parts are well lighted. There is one main staircase, and there are two service staircases adjoining the kitchens.

The planning of a flat itself is an interesting

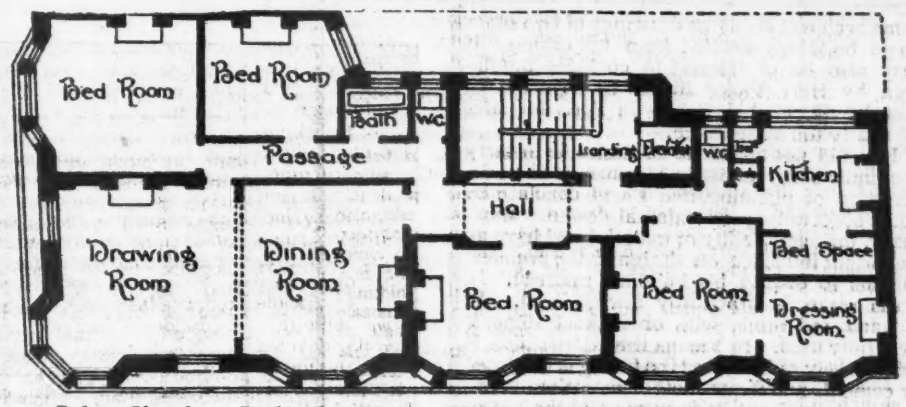
problem, one requiring great thought. First, there should be a good and well-lighted hall, or antechamber. The reception-rooms should be readily accessible from this, the bedrooms more retired, and the offices out of sight, but handy for service to the principal rooms and to trade access. Efforts should be made to get away from a mere narrow passage hall, and to adopt some more compact plan. An octagon or a circle, a hexagon or an ellipse will form pleasing forms, and all admit of decorative treatments. A good example of an octagon treatment may be seen in M. Nerrot's building in the Rue la Boëtie, and there is another at No. 42, Avenue Henri Martin. The rooms, too, even in rectangular sites, need not all be square or rectangular. M. Poupinel, in his No. 10, Rue Descamps, gives an excellent plan of a flat, interesting as a composition, the rooms of different geometrical shapes, passages well lighted, the whole convenient and well arranged, although, perhaps, the hall might have had a better window in the angle without injury to the other rooms. In this building we note on the ground floor an up-to-date cycle stable in a convenient position, an elliptical staircase with lift, one suite on each floor consisting of three reception and five bedrooms, bathroom, two water-closets, a little kitchen (about 11 ft. 6 in. by 9 ft. 9 in.), with an "office" or pantry fitted with cupboards, between it and the service staircase. There is a meat safe in the kitchen window, but no separate larder. I have already referred to the servants bedrooms on the top floor, to the ventilated courts, &c. I venture to suggest that it would have been better if the service staircase had an exit on the ground floor distinct from that through the main entrances.

As to height of rooms, it appears to be very general to adopt about 10 to 11 ft. in clear in all three capitals. I think this ample for moderate sized rooms; a greater height makes them appear smaller in area. Windows should be ample, especially in a city, and I would draw your attention to the large size of doorways in the Parisian examples. Passages should be light, and the more direct the better. Do not forget to provide ample cupboards. Baths, sinks, water-closets, &c., should not be all over the place, but, within reason, grouped near together.

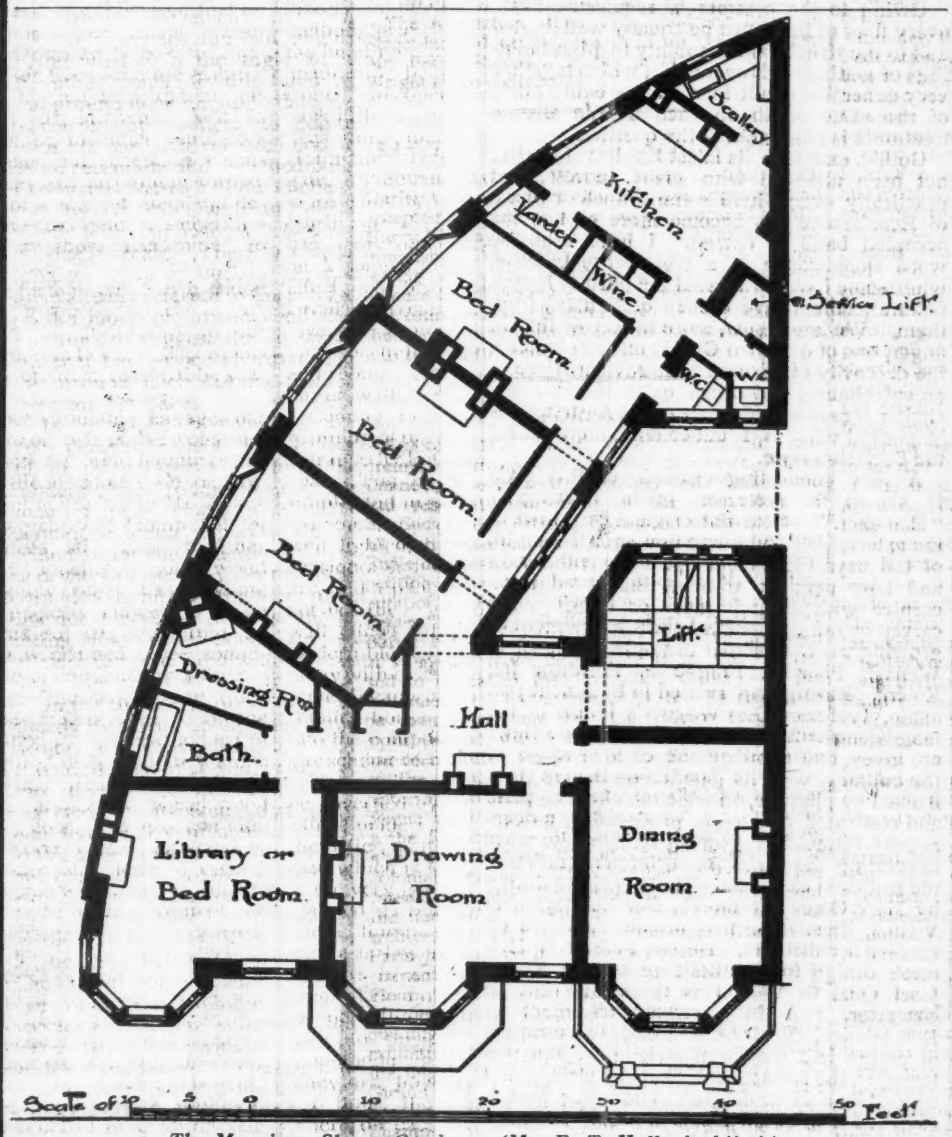
On the subject of planning, I would sum up shortly by saying, make your plans interesting, bright, and above all study to make them simple, the simpler the better. You may be sure if you see an intricate plan it is ill-digested, inconvenient, and generally not so well lighted or ventilated as it should be.

We have hitherto considered only large sites, but there are a greater number of small sites which have to be treated, and I would refer you to Baron Max Ferstel's design of a house in the Stammgasse, Vienna. It is six stories in height, the top floor containing studios. The other floors contain each a flat with five rooms, in addition to a kitchen with servant's bedroom attached and a larder. Here the two nurseries are placed at the rear, with separate service from the kitchen. There is also an access from the living-room to these children's rooms, so that the mother has a ready control. The bathroom and water-closet are ventilated into a small area, but the bathroom is only apparently accessible from the living-room, which appears to me to be an undesirable feature. The planning also of the suites over the Café Secession, in the Rothenthurmstrasse, by Professor Julius Deininger, is worthy of study. Herren Fillner and Helmer, in No. 21, Schottenring, have a pleasing and clever little plan, with a good courtyard. The suites have a hall, three rooms, bath, and water-closet.

Among the Parisian drawings there is an excellent treatment of an acute-angled small site at the corner of the Rue Montmartre and the Rue Réamur by M. Gautrin. The angle itself is occupied by a circular salon, the other six rooms all face the two streets; the staircase is circular, lighted from an internal court, and the passage is also well lighted. M. L. Carrier, at the corner of the Rue du Faubourg Saint Honoré, has also a most convenient and pretty treatment of a good site. Another good plan is that at the angle of the Faubourg St. Martin and the Rue du Château d'Eau by M. Rives. In London, Mr. John Slater's corner of Mortimer-street is convenient and well lighted. In Palace-chambers, Buckingham Gate, Messrs. Martin & Purchase have an angle site which appears to have required considerable thought to evolve a plan to give good light to all the



Palace Chambers, Buckingham Gate. (Messrs. Martin & Purchase, Architects.)



The Mansions, Sloane Gardens. (Mr. E. T. Hall, Architect.)

apartments. Perhaps it may be permissible to mention one of my own buildings with a rather awkward site. It is a quadrant on plan at the corner of Sloane Gardens, and is shown on the screen. Among the plans of bachelor suites we have one of Mr. John Slater's for a very shallow site in Well-street. He puts two suites to a floor off each staircase, and also, in addition to a parlour or sitting-room, two bedrooms, and a bathroom with water-closet in it, gives a small kitchen. The whole forms a very small self-contained residence, to be let at a low rent. Mr. Paul Hoffman, in Harewood-place and Hanover-square, has one staircase, a corridor common to several suites, each containing an entrance-lobby, a sitting-room, bedroom, bath-room, and water-closet, but the two end suites can be combined to make a family suite.

I would draw your attention to two sets of plans of large buildings in Vienna the sites of which are acute-angled triangles, both by Professor Carl Konig. One at the corner of two streets is the palais for Herr Josef R. von Herberstein. It has a carriage entrance in the centre of the principal front, a small glass-covered courtyard in the centre, and a way through to the side street. You will note that there is a stable within the main building entered from the courtyard. The second and third floors are divided into two complete suites of flats. Two principal staircases are carried to the mezzanine and first floor. One of these only goes up higher, and a service staircase is carried from bottom to top. A difficult site is well utilised, and all parts of the building are well lighted. The other building, with a site of almost identical shape but larger, is surrounded by roads, the Augustiner Strasse, the Tegetthoff Strasse, and the Führich Strasse, and the approaches are arranged in the same way. No elevations have been sent. There are others of Professor Konig's designs which will repay study. In the Palais Leon-Wernberg, by Herr Baurath von Neumann, we have an example of another large building with a good central area. One staircase above the first floor serves a large number of rooms, forming two suites per floor. From the landing an outer gallery gives access to the suites and borrowed light to two or three rooms. On the first floor I would note the careful planning of the acute-angled excrescence on the right hand. The

same architect sends us drawings of two other large buildings erected from his design. It may also be of interest to compare the design by Herr Victor Siedek in Vienna with that by M. Michel Rabier in Paris for sites of nearly the same shape.

It would not appear to be desirable to carry the limits of my paper to a further detailed description of planning, and I will conclude by some observations on external design. Manifestly, the accessibility of material will have an important influence on design if the architect intends to display his building material. In Paris stone is practically always used. In London red brick, with or without stone, is generally used. In Vienna the construction is very largely of brick, but the facing is of stucco or cement, and so are most of the columns and architectural detail, even in some of the largest buildings.

Owing to the commercial requirement that every floor of flats must be equally well lighted and to the structural desirability in high buildings of getting voids over voids, which together very generally result in windows being made of the same width on each floor, a Classic treatment is nearly out of the question.

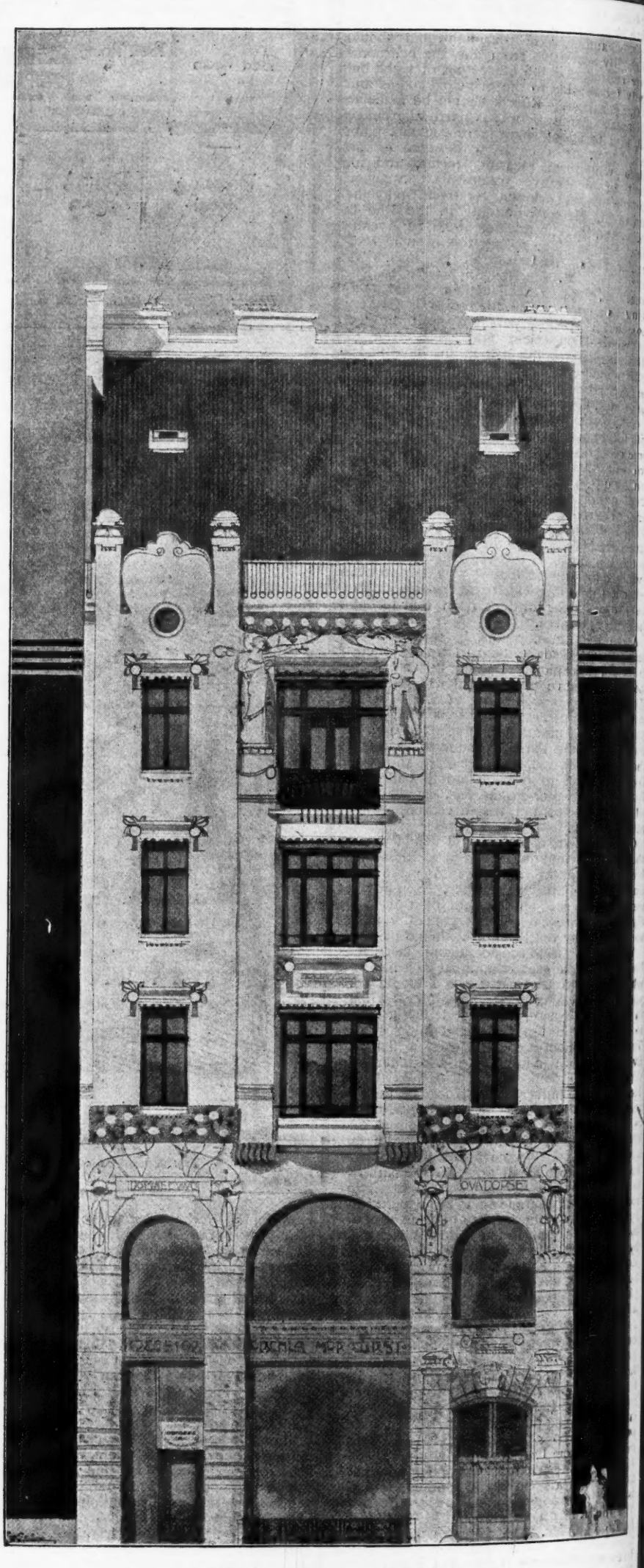
Gothic, except in its latest English style, has not been attended with great success, and practically everywhere some branch or phase of Renaissance has become more or less the accepted basis of design. I have used the word Renaissance in a wide sense because, while some have introduced the normal Italian features, others have broken quite away from them. We know how, more in sorrow than in anger, one of our own Classic masters laments the depravity of a truant architrave or frieze in an entablature, and I can quite imagine the similar sensations of some of his Austrian colleagues at what is, I understand, there called the Secession style.

A very interesting example of this style is shown in Professor Julius Deininger's "Romahof." Note the original treatment of the exterior, the sculptured figures on the angles of the bays, the panelled pilasters with masks and long pendent ribbons, the coved floral cornice without architraves or necking, the carved or rather modelled surface treatment of growing trees. Another example is a house in Wenzels Platz at Prague by Professor Jan Kotéra, pleasing and refined in treatment; or, again, Professor Otto Wagner's house in the Magdalenenstrasse, Vienna, of which two views are given, one showing the circular angle of the building, with its pavilion on the top story flanked by pilasters, on which an effect of plain and rusticated courses is produced by a decorative treatment of growing foliage; the other illustrating the elaborate surface decoration of the principal elevation. There is also a design by Herr Oscar Marmorek, Der Nestroyhof at Vienna, illustrating that architect's views on modern architecture. Herren Fellner & Helmer's design for the building on the Franz-Josef Quai in Vienna is quite different in character, and is a refined treatment of Renaissance. Their St. Annahof is an example of design in a mediæval style, quiet and picturesque, the surface unbroken by strings and capped by a small cornice. The lower part is enriched with broad bands of nearly life-sized figure subjects modelled in bas-relief.

In Paris the architecture of the apartment house has generally its characteristically native treatment, shows great refinement, and, in my view, adapts itself admirably to the purpose of the buildings. If I may single out one or two illustrations as indicative of this adaptability, mention might be made of the exhibited design in the Rues Réamur, Ledru-Rollin, and Château d'Eau among many others.

In London the most conspicuous block is on the Embankment—Whitehall Court, by Messrs. Archer & Green—a stone building, as to design based on French Renaissance. Most of the other flats in London are of red brick and stone combined. They are well known and accessible to all of you. Doubtless in some, and may be in all, there are features which, whether admirable or not, are suggestive, and from which you may derive an inspiration of great value.

Well, sir, I am now coming to an end. My endeavour has been to recite first the practical and hygienic considerations regarding safety from fire, exits, ventilation, and sanitation, which form the very bed-rock on which to base a design; then on this basis to consider the æsthetic side, to suggest principles governing the laying-out of various sites, the interna planning and lighting of the buildings and their



Apartment House, Prague. (Professor Kotéra, Architect.)

exterior treatment. I have sought to interest the meeting by illustrations from the works of many architects at home and abroad. If I have succeeded in offering any food for reflection, then my labour will not have been in vain. In conclusion, I have to offer on my own behalf, and I am sure on yours also, our cordial thanks to our colleagues at home and abroad who have so kindly lent their drawings to-night. Their names are given in the body of the paper.

Mr. Locke, the esteemed secretary of the Royal Institute of British Architects, very kindly responded to my request to assist me in getting foreign drawings, and wrote to Baron Max Ferstel, of Vienna, and to M. Poupinel, of Paris. To both those gentlemen we owe an especial acknowledgment for their great courtesy in sending us so many drawings. Baron Ferstel especially must have taken infinite trouble to collect from so many architects the very large and interesting series of representations of their works which we have been privileged to examine. You will, I know, desire me to send through both the gentlemen I have named your greetings to them and their colleagues, with our expression of a hope that the new century may strengthen the bonds of amity between our respective countries.

Mr. J. J. Stevenson, in proposing a vote of thanks to the lecturer, said that one thing which must strongly affect the planning of flats in England, as compared with France, was the system in France, especially in Paris, of putting the bedrooms of the servants, male and female, on the top floor of the building. The system—an old one in Paris, where flats, or apartments, had been in existence a long time—was one which we should not tolerate in England, for it was neither good for the servants or the masters, and it would always be one of the great difficulties in the designing of flats in England. In large London houses the basement floor occupied a great deal more space than any other floor, and if was extremely difficult, on the space available for the flat, to plan the servants' quarters—the kitchen, &c., and their bedrooms especially—as servants could not now be crowded three and four in a room as they used to be. It had occurred to him that, instead of flats all on one floor, it might be possible to make a flat of, so to speak, two floors with a sort of two-storied house—a collection of two-storied houses one above the other. He thought there might be some economy of space in such an arrangement. In flats there was a good deal of dreariness due to a lack of open air space about them, and in order to see the sun straight above his head an occupant of a flat had to go down so many floors. That was a point which might receive the attention of designers of such buildings. He had seen some flats where it would have been far better that a part of the available space should have been left outside the walls, with the free winds of Heaven blowing round, and, following the examples of some of the old palaces in Italy, it was wonderful what an idea of garden and greenery could be got in such buildings by the skilful planning and adjustment of small spaces. If he had to live in a flat, that want of open air would cause him to prefer living at the top, and it had occurred to him that the roofs of such buildings might be treated as gardens for the use of the occupants below, so as to give them an opportunity of getting fresh air—though there was one drawback to that, viz., that such places would be exposed to smuts from chimneys. It was a matter for congratulation that so many architects at home and abroad had sent drawings and diagrams to illustrate the paper, and thanks were especially due to Mr. Hall for the trouble he had taken in the matter.

Mr. Paul Hoffmann said, as to the remarks of the last speaker in regard to two or more flats, one above the other, he knew of one or two examples where that had been done. One was the well-known block of flats, designed by Mr. Norman Shaw, adjoining the Albert Hall. Mr. Shaw had adopted the plan of having the drawing-rooms—in fact, all the residence-rooms—of considerable height, viz, about 18 or 20 ft., and on to these he had put two stories of bedrooms and kitchens, connected in the rear by a private staircase. It was a rather economical arrangement, and fireproof floors were not necessary to the floors dividing two flats. Another way of doing it, and one which was often adopted, was to combine a flat below the topmost story with a flat in the roof. In regard to gardens, these could be taken into consideration where the site was affected by ancient lights, and in planning flats the question of ancient lights was an important matter. On the Continent this was not so, and all that an architect had to do was to keep his building about 10 ft. from the window which would be considered to have an ancient light. In this country, however, there was no law, only a suggested angle of 45 deg., and where such an angle was required, it would be possible to set the houses back and form ledges or terraces which could be used for gardens. He did not think that, generally speaking, flats in England compared unfavourably with those on the Continent, considering all the difficulties architects had to contend with here, especially that of having to submit designs to so many interested parties. He might add that such a thing as the leasehold system was not known on the Continent, and that considerably facilitated matters for the Continental architect.

Dr. J. F. Sykes said he spoke entirely from the point of view of a sanitarian, and not from the point of view of an architect. London, apparently, was going to be rebuilt in flats, and that was a most important matter for the architectural world, especially in regard to the lines on which such buildings should be laid down. Abroad, everything was cut and dried, and such questions as light and air had all been settled ; but in London it was not so, and there were a great many difficulties in regard to the construction of such buildings as flats. On the Continent it had been the custom for years past to construct houses round a central courtyard, but that had not hitherto been the custom in England, where houses had been constructed as open houses round a street block. Those who had been abroad had noticed how common were the central courtyards, but that was a feature to be avoided, if possible, especially in the extreme way in which it was carried out, particularly in French towns. It was extremely desirable to get air into flats, and for that reason it was important to avoid the central courtyard. In the ordinary house there was the well-staircase, with windows opening on to it, as well as all the rooms of the house, so that each room got ventilated independently of every other room. A flat was, practically, one large room divided into apartments as a rule, but in the ordinary house the staircase-well acted as a ventilating well ; but not so in the flat, because it did not exist, and some means of ventilation must be adopted to replace it. Some flats had ventilated corridors, with all the rooms opening on to the corridor ; others had corridors running from back to front, and sometimes there was only a vestibule. Mr. Hall spoke of having a vestibule in the centre, but he (the speaker) greatly objected to closed vestibules in flats, because an occupant could tell what he was going to eat long before meal time, and the odour of one room would pervade the other rooms owing to the difficulty of ventilating the vestibule. [Mr. Hall : My point was that the vestibule should be ventilated.] The difficulty was to get that done, and many such vestibules had no ventilation whatever. There were things to be avoided in the construction of flats, which were very difficult to avoid. He would give them a practical illustration. In some parts of London where the well-to-do once lived, and in other cities, there were houses—generally the old type of self-contained house of ten or twelve rooms, which had been sub-let, with the result that, each room being occupied as a separate dwelling, the chimneys of the building always smoked. That was invariably the case, and it was due to the enormous draught in the chimneys created by so many fires extracting the air and causing each chimney to pull against the other. If one fire was lighted the air was pulled down from another chimney, and it would be an extremely well-planned and well-ventilated house where that was not so. In flats that were occupied by a number of people at the same time, and where a number of chimneys were being used, the air of one chimney tended to draw against the other, with the result that in flats the chimneys did not draw so well as they did in ordinary houses. Moreover, another result of chimneys of flats not drawing well was that the air in the rooms was kept in a stuffy condition. The point he wished to dwell most upon was that the air of a flat was the main point to be considered, and it was a point which the architect would find it extremely difficult to deal with.

Mr. F. G. F. Hooper, in seconding the vote of thanks to Mr. Hall, said they had been very much interested in seeing the illustrations of flats by foreign architects. A most valuable education in the planning and arrangement of such buildings was obtained by living in one of them. It was extraordinary what a number of little points could be found out in that way. As to the treatment of stairs in such buildings—whether there should be one or two staircases—he had lived in a flat in Westminster where there were two staircases, and one of them, the servants' staircase, had a well. The occupants of each flat heard all the conversation and noise which took place on the servants' staircase, and from that time he had always advocated a solid newel where a servants' staircase was planned, and he was rather surprised that so few plans made such a provision. Scarcely any of the continental architects provided a solid brick newel, but for all that it was a good method for keeping a building quiet. Mr. Hall had alluded only to what were really self-contained flats, but there were many flats which were worked, in a measure, on the co-operative principle, the rooms were shut off and each tenant could have his private rooms, though the service was in common, and the kitchens and servants' department were worked from a central position. The convenience of that was obvious in many respects, especially when an occupant wished to go out of town for a few days. It was all very well to suggest that the occupant of a self-contained flat could shut up his rooms when he wished to go out of town ; but what could he do with the servants ? True, he could leave them in possession, but where would they be when he returned ? He (the speaker) would do almost anything rather than be a servant in some of the flats he had examined, for many servants never saw the sky unless they went outside. As to air shafts, it was possible to plan them in such a way as to provide a tunnel—or a wide opening forming a corridor, or simply a ventilating duct at the bottom—so that there should be air passing from outside the building through the air-shaft ; and if that were provided the architect would ease his conscience in regard to the circulation of air, as it was almost certain that a shaft with an inlet at the bottom would produce an upcurrent, and it was not the fault of the architect if the first manager of the place suggested a screen to go across the entrance—and this was often what an architect had to contend against. The architects' plans in that respect were often defeated by one man who insisted on stopping a draught that was annoying to him, though in so doing he made the other occupants suffer. A rather important point in regard to flats was as to the vertical division of them. An architect might plan his building with the utmost care, and with the object of suiting the requirements of the average mortal, only to find how varying were the requirements of the average mortal. One man wanted a large, and another a small, room; or one wanted four and another six rooms. In these circumstances it was convenient to construct the building in such a way as to make it easy to remove the partitions so as to make one large room, or to put partitions in so as to make small rooms. As to two-storied flats, he was glad that Mr. Hoffmann had referred to the interesting buildings by Mr. Norman Shaw. A simple arrangement by which the occupant of a flat could get into the open air was by means of balconies, not widely extending balconies, but those which extended far enough to enable a chair to be placed outside the French casement. It added greatly to the interest of such a place to be able to look down a street from such a position.

Mr. C. J. C. Pawley said he agreed that the best way to find out how to plan and arrange a flat was to live in one. In his opinion there would be a great development of the flat in London. In fact, already there was a great demand for such buildings, and architects should devote their attention to the subject. The first obstacle an architect of flats had to contend against was that of ancient lights, while another drawback had been the difficulty in getting financial people to find the money for the erection, though that difficulty was to an extent overcome in London owing to the great life and fire offices regarding such property as good investment and advancing sums of money on it. As to the ventilation of flats he had found it a good plan to have the

entrance doorways to rooms carried up to ceilings, and to have a fanlight with an opening gear worked from the lower part of the sash, and with a cord for the purpose of regulating the ventilation. He thought that Mr. Halls observations with regard to large doors and windows were useful, especially in regard to the design of such buildings in London, where one could not have too much light. As to the doors, in many places the opening was so small that when furniture was moved about, both it and the doors were damaged. As to the aspect of flats, if Mr. Hooper visited some flats that he (the speaker) was acquainted with he would see from the buildings plenty of sky and sunshine and greenery. He did not think that any room in an ordinary flat should be less than 10 ft. from floor to ceiling. He thought it very important in such buildings to have roofs for promenade, and at St. James's Court there was a winter garden for the eight blocks and also provision for any tenant to go on to the roof for a walk. As to smoke, he thought they should do all they could to do away with the smoke in London, and in his opinion much could be done by advocating the use of gas fires which, in his opinion, would be the fires of the future for flats, especially in dwelling rooms. They knew the disadvantage of gas fires, but great improvements had been made recently. He regretted that there were no illustrations of American flats and that the American buildings had not been referred to. People in this country could not go quite as far as Americans, but we might with advantage adopt some of their improvements. As to removable partitions, he had used quite a new material for the purpose, viz., pumice stone made in blocks and imported from Germany, and he thought the material had a future before it. Of course, the material could only be used where there was no weight to be carried, but the blocks had this advantage —they were exceedingly light, plaster adhered to them, and they could be very easily cut, and for these reasons they were suitable as partitions in flats. He believed in the use of balconies in such buildings.

Mr. G. B. Carvill referred to the paragraph in Mr. Hall's paper relating to the solid wood fireproof floor patented by Mr. Evans. He (the speaker) had often wondered why the floor had not been a success, for it seemed to him to be a very good thing, and he had seen it used in two or three buildings, but not for the last five or six years. Perhaps one drawback to its use was that the timber had to be very dry when it was first put in, and unless the roof was on there was always the chance of rain coming in. Moreover, the expansion of very dry timber in such circumstances would exert a thrust on the walls.

Mr. A. T. Bolton said he did not think there would be the rapid development in the erection of flats that had been predicted, and for the following reasons. Although it was true that much of the centre of London would be rebuilt as flats, still the tendency of the day, aided by rapid means of locomotion, was for people to reside in the country. This was true not only of London, but of all great towns, and he had been very much struck by the fact in Dublin, and also in Leeds and Birmingham; therefore, although there might be great activity in the building of flats in places like Mayfair and Westminster, it did not follow that the introduction of flats was going to change the habits of a people. He thought there was no comparison in the advantage to a nation as between a people that dwelt in houses and one that lived in flats. Consequently, there was a great deal more in the question than the purely architectural point of flats affording opportunities of larger, more expensive, and therefore, in a way, more important buildings. It would be a bad day for the country when an Englishman's house ceased to be a castle and became a flat. He had been over a good many flats, and he thought, observing the dark corridors and miserable outlooks, that the inhabitants of these highly-priced flats could have done incomparably better, could have had really splendid houses, with much more comfort, for the same or less money. It seriously affected family life also, for great as might be the attractions of such buildings to newly-married people, they would discover that their company would later on become undesirable to residents who were not fond of children. This question he had seen discussed in connexion with the Peabody Buildings, and in his opinion there was a tendency for people after some trial to remove from flats and to take a house. He sympathised strongly with Dr. Sykes in some of his remarks, and he thought that in the case of infectious diseases the desire of a doctor who cared about his patient would be to remove at the earliest possible moment the patient from such buildings. Not only in the ordinary infectious cases, but also in subtle cases like influenza and in the many cases where quiet was required, flats were exceedingly detrimental. As to lifts, it was no doubt more pleasant to be at the top of these buildings, but the possibility of living there depended to a large extent on the accessibility of the apartments; there were certain hours when the lifts would not be available. He had seen something of the flat question in France, where the commonest complaint against life in such buildings was the autocratic and arbitrary rule of the *concierge*. The *conciergerie* was described as a centre of gossip, and the tyranny of the *concierge* was a by-word in France; and, it might be asked in that respect, whether the liveried porters in England were a source of trouble. A man certainly was not so much his own master in a block of flats as he was when he occupied a house of his own; and the idea that it was at any moment possible to lock up for a time one's apartments in a flat and send the servants off was a delusion. Servants could not be given holidays at any moment, and the real way to enjoy life in a flat was to do without servants. The non-self-contained flat, or the residential hotel, had been alluded to, and had been spoken of as presenting many advantages over the ordinary flat. For instance, people who love company were attracted to this mode of life, and many of these residential hotels provided splendid dining and other rooms where company could be found at all times. That class of flat was quite as likely as the ordinary self-contained flat to be the flat of the future. Mr. Hall had referred to the question of elliptical and circular staircases, and had said he preferred to have a landing. A landing was ruination to the effect of a circular or elliptical staircase, the whole beauty of which consisted in an unbroken wreath, and if a landing were introduced the effect was spoilt. In that respect the French showed great taste, for when they indulged in that class of staircase they kept it unbroken from one floor to another. As, however, a block of flats was, in a sense, a public building, it was a question whether winding steps could or ought to be introduced. They would all feel indebted to the suggestion as to putting down linoleum on concrete without intervening boards, and he had heard of the same thing being done with cork carpet—the carpet being glued down; but he was not sure how far that excluded the noise. As to suspended ceilings, the difficulty was that there was a tendency to cut floors fine in depth in order to save in the total height, and it would be difficult to save space with a suspended ceiling. A solid 9-in. concrete floor with a suspended ceiling underneath meant a 12-in. floor. He did not quite agree with Mr. Hall that 7 ft. by 10 ft. was too small for a bedroom in the case of a house. It all depended upon what arrangements were made for ventilation. Many people would rather have five small rooms than four slightly larger in size; and provided that windows could be opened and that there were fireplaces provided, there was a great deal to be said for the small room. The best side of the flat system was that it taught a lesson of economy of space, and house planning would be improved in detail as a consequence.

The Chairman, in putting the vote of thanks to the meeting, said they were indebted to Mr. Hall for the great amount of trouble he had taken in the preparation of his paper. As to the development of the flat system, there seemed every probability of its further development in London, and he was of opinion that that was due in part to the enormous increase of visitors to London and not so much because of a demand by English people for that style of dwelling. Visitors came from the provinces and from abroad just for a season, and it was convenient to be able to take a flat for three months. He was much struck with Mr. Hall's remark that there were practically no flats in our great provincial cities. There was a very interesting article in one of the magazines suggesting that Englishmen were becoming a nation of entertainers, and the writer illustrated his remarks by reference to the enormous expansion of the hotel and flat system in London. As to the objection to flat life in consequence of the noise of adjoining occupants, there was no difficulty in preventing it vertically, but horizontally it seemed almost impossible to stop it where there were families of inconsiderate people who thought of no one but themselves. He suggested that in constructing flats a small strip of felt nailed on the top of the joist carrying the wood floor would deaden sound. The question of the disposal of dust had not been referred to, but he might say that he did not think that the dust shoots which had been introduced into some of these buildings, were at all satisfactory. As to the great open court in the middle of these buildings it was not popular in England. The Latin plan had not taken root here for several reasons. He did not know whether a main ventilating duct had been tried and an air-shaft with electric fans. Perhaps that arrangement would establish sufficient up-current, though the expense and the draught might tell against it. It would be interesting to know whether electric fires had been tried. He very much doubted whether gas fires would take the place of coal as had been suggested, but he thought that some system of electric warming could be adopted with advantage. With the vote of thanks he wished to couple the names of their foreign and English colleagues who had supplied them with so many interesting illustrations.

The vote of thanks having been put to the meeting and heartily agreed to,

Mr. Hall, in reply, said they would all agree with Dr. Sykes as to the importance of making flats sanitary. If they were not sanitary they would not last, and it went without saying that architects intended to pay attention to sanitary points. As to smoky chimneys, his impression was that it was almost impossible to get a domestic flue 60 or 70 ft. long that would not smoke. The fires on one or two floors would be all right, but that was not the case with those on the lower floors, for a column of air which left the ground floor warm ceased to be warm as it ascended, and then did not rise, and the heavier air forced it down again. Rooms and corridors, of course, must be ventilated, and it was not difficult to do that. He introduced inlet and outlet ventilators as well as windows in all rooms, but what was really more important, residents should be encouraged to use them. He quite agreed with Mr. Hooper's objections to servants' staircases. It was not desirable to introduce the servants' staircase unless it were put close to the principal one, and there were objections to that on other grounds. As to removable partitions, it was his practice to build only the main walls, and to let partitions in flats or similar structures be carried on the floor itself, so as to make it easy to take them down if desired. Balconies were pleasing additions, but there was the danger, unless they were rather high, of people falling over them; and when this danger had been provided against, people could not see over them. He did not suppose that the private house would be given up in the future, or that an increasing number of people would not go to live in the suburbs; but out of a population of four millions a considerable and increasing number would prefer to live in towns, and flats were taken because ground for houses of equal area could not be obtained at an equal rent. He thought it wrong and selfish for people who had children to live in flats—wrong for the children, he meant. Children should not be brought up where there were no facilities for running and playing about, and consequently life in flats was deleterious to the health of children. He joined issue with Mr. Bolton when that gentleman said that flats were unhealthy. Quite the contrary was the fact, as Peabody statistics showed. [Mr. Bolton: A selected class.] They were not superior, so far as their habits were concerned, to the class under discussion, and therefore not likely to live longer, and he felt certain that the health of persons living in flats, assuming those flats to be built with some degree of sanitary fitness, would be superior to that of people living in the same district in ordinary houses of like accommodation. [Mr. Bolton: In all the Peabody buildings there is a large amount of supervision.] But supervision did not prevent a man dying. He had never heard of a private flat not being kept as clean as a private house (and he could not imagine things being different), nor of people altering their habits because they lived in flats. As to the prevention of noise, he thought that the suggestion as to felt was a good one, but he feared the felt might rot. Boards, when covered with linoleum, rotted

unless they were ventilated, and that was why he had given up using wooden floors. He had a case (it was not one of his own designs) in connexion with a twelve-year-old building where the 3 in. by 2 in. joists laid on concrete had been covered with linoleum, and about every three years a new floor had to be put in. The floor was unventilated, and the rotting was probably due to moisture which had got in at the time the building was erected. As to the size of rooms, no room for sleeping purposes should have less than 1,000 cubic ft. of space. It was all very well to say one could economise space, but a person needed a sufficiency of cubic space to breathe in. One could live tolerably comfortably in a cabin on board ship, because the port holes admitted plenty of pure air. In London, where the air was frequently stagnant, something had to be done to make the air move, and this was done by ventilation. The first thing a doctor did for a patient was to insist on his sleeping in a room with not less than 1,500 ft. of cubic air, and if a considerable cubic space was necessary for a sick person, it must be desirable for a person in health. People must have an adequate breathing space. As to dust-shoots, he hoped that no one would use such things as vertical dust-shoots in a flat, for they were abominable things. What were required were sanitary receptacles like galvanised iron pails with lids, and these should be collected every day. He would have much pleasure in conveying the vote of thanks to those gentlemen who had kindly lent them drawings for the occasion.

The Chairman announced that the next meeting would be held on Febrnary 1, when Mr. D. T. Fyfe would read a paper on "Architecture in Crete and Turkey."

The meeting then terminated.

ARCHITECTURAL SOCIETIES.

PROPOSED FORMATION AT BELFAST OF A BRANCH OF THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A meeting of the architects of the city was held at Belfast Town Hall on the 15th inst., for the purpose of considering the advisability of forming a branch of the Royal Institute of Architects, Ireland. On the motion of Mr. Close, seconded by Mr. J. C. Lepper, Sir Thomas Drew was moved to the chair. The chairman said it gave him great pleasure to see such a large number of the members of the profession present. When the desire was expressed that a movement of that kind should be set on foot, it was thought that he, as President of the Royal Institute of the Architects of Ireland, should summon the members to meet him in Belfast. As the local representative of the Royal Institute of British Architects in London, he thought he could go further, and summon the members of that Institute. Other members of the profession had also been invited by the secretary to be present.—It was agreed that Mr. Fitzsimons be appointed secretary of the meeting.—The Chairman, in giving a statement of the objects of that meeting, said that as a native of Belfast he was pretty well aware of the difficulties to be met in the formation of a co-operative society. His forty years' experience in Dublin had also taught him the enormous advantages and good fellowship which was engendered by cohesion amongst the members of the profession. He had heard it said that it would be impossible to form a cohesive society in Belfast. He was perfectly well aware of the difficulties, but he thought those difficulties were not insuperable. One of the great difficulties in bringing about unanimity of practice in the city was the question of fees. He knew the position in Belfast was very different from that in many other towns, and differed in toto in respect to the class of buildings to be erected. There were buildings here of the warehouse class, and rows of houses in a growing town, and it was unjust and unreasonable to lay down a hard-and-fast scale of fees. Sir Thomas then went on to speak of the unsatisfactory condition of affairs amongst the architects when he first went to Dublin. There was little cohesion, and the members had very old-fashioned and evil notions, but since that time a better state of things had been brought about. Instead of the proper percentage being paid to architects, half, and sometimes less, was paid, but since that time the old system had died out, and now the architects were working together on terms of the most perfect harmony and understanding. There was no architect who was in any difficulty but the other members of his profession came around him and supported him. He was quite sure that that society would strengthen all its members by co-operation, but he did not think at present there should be any very stringent rules laid down as to professional conduct in the way of declaration. It was quite premature to ask intending members to be members of the Institute in Dublin, but in many ways it was desirable that the local society should be affiliated to that Institute. It should be open to their members to become members of that Institute or not, just as they chose, just as their society would join with the British Architects' Institute. Their society would be simply to watch over the interests of all architects.—Mr. W. J. Fennell moved the following resolution:—

"That, having regard to the lack of organisation of the architectural profession in Ulster, it is desirable that an association be formed, having for its objects the promotion of union and professional integrity amongst its members, the establishment, as far as possible, of uniformity of practice, and the general advancement of architecture; to consist of Fellows and Associates of the Royal Institute of British Architects, and members of the Royal Institute of Architects, Ireland, together with such other competent members of the profession as may desire admission, and be elected subsequently under a constitution and by-laws, which shall be framed by a council elected for that purpose and approved of by a majority of the members; that the constitution and by-laws be subject to the approval of the Royal Institute of Architects, Ireland, and the association so formed be affiliated thereto and have official representation on its council."

After expressing his pleasure in being asked to fulfil that duty, he said there was no organisation at all in Belfast, and he thought it was a step in the right direction to form one. The objects were, first, the promotion of union, and in regard to that he thought there was exceedingly little union among architects in Belfast. At any rate, he had seen very little of it in his twenty-five years' experience. The last paragraph was a most important one, and it was to the effect that their branch must be affiliated to the Royal Institute of Ireland, and have representation on the council. That he considered most important. Such action would lead to a better and higher standard of practice, and it would be of great benefit to the members of the profession in Belfast and to the general public.—Mr. J. Gilliland seconded the motion, and said the necessity was great, because London was very far away, and Dublin not very near. It was impossible for the members to keep in touch with those centres, and as those centres had no local knowledge it was necessary to deal with local questions and to discuss matters among themselves. Union in Belfast had been conspicuous by its absence, and disunion would be the more proper term to apply to it.—Mr. W. Kaye-Parry said it was a great honour to be permitted to support the resolution, and to be associated with the movement inaugurated that day. The resolution was then adopted.—Mr. S. P. Close then moved:—

"That a provisional committee be elected to prepare a scheme and report to a general meeting, correspond with the Royal Institute of Architects, Ireland, and take such other steps as it may consider desirable to promote the interests of the proposed association; that the following be the provisional committee:—Vincent Craig, F.R.I.B.A.; J. J. M'Donnell, J.P., M.R.I.A.I.; Frederick H. Tulloch, A.R.I.B.A.; William J. Gilliland, M.R.I.A.I.; John C. Dewhurst, M.R.I.A.I.; Nicholas Fitzsimons, A.R.I.B.A., secretary and convener."

Mr. G. W. Crowe seconded. This motion was also carried unanimously. Mr. Jas. St. J. Phillips moved:—

"That this meeting hereby expresses its cordial approval of the resolution passed by the council of the Royal Institute of Architects, Ireland, at its meeting of the 7th inst., as follows:—'The council of the Royal Institute of Architects of Ireland, having had the result of the Presbyterian Assembly Hall competition, Belfast, brought before them, are of opinion that the conduct of the Competition Committee in not following the usual and proper course of publishing the report of their assessor (which they understand was an open document), and in appointing as architects to the new building the firm who drew up the original very unsatisfactory conditions, is deserving of their condemnation as being absolutely opposed to the methods which should govern all fair and impartially conducted competitions. The council considered the proper course for the committee to have adopted was either to have given the work to the gentleman placed first by the assessor, in conjunction with a consulting architect of experience, or else to have invited a fresh competition with more satisfactory conditions than the previous one.'"

Mr. Nicholas Fitzsimons seconded the motion. The Chairman, in putting the resolution to the meeting, said he could not do so as the assessor of the competition referred to without making some observation. The model in question was impossible, unsatisfactory, and distasteful, as were so many of the competitions in Belfast.—The resolution upon being put to the meeting was adopted. Mr. Vincent Craig proposed a vote of thanks to Sir Thomas Drew, President, and Mr. W. Kaye-Parry, secretary, of the Royal Institute of Architects, Ireland, for their action in calling the members together, the cordial interest and sympathy they had shown in local professional interests, and for their attendance that day. Mr. F. H. Tulloch seconded the motion, which was carried unanimously, and the chairman replied.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At the meeting on Wednesday, January 16, Dr. W. de Gray Birch in the chair, the Rev. H. J. D. Astley, hon. editorial secretary, read some notes contributed by Mr. L. D. Jones, of Bangor, upon "Yr Eglwys Wen" (The White Church), as the remains of rubble walling, blocks of quartz, and slabs of rough stone are locally called. These remains are situated between seven and eight miles from Bala, and form a rectangular level space, 45 ft. by 15 ft. Mr. Jones submitted carefully drawn plans and maps of the locality to illustrate his notes, and also sent some fragments of pottery, charcoal, and contents of an earthen vessel, which were discovered in the centre of the area, about 12 in. beneath the surface. It is proposed to undertake a thorougly systematic exploration of the site later on, in order to determine, if possible, the nature of buildings which seemingly originally existed on this spot. Dr. Winstone exhibited, on behalf of Mr. Fry, a seal found in an excavation at Dover, 6 ft. below the surface. The seal is finely cut and exhibits a portrait of a young man resembling Sir Walter Raleigh, and may be a conventional portrait of that worthy, but it was considered of later date than his time. An interesting paper was also read by Mr. Patrick, contributed by Dr. Fryer, upon "Norman Fonts in North-East Cornwall." These fonts form a group of nine in the parishes of Altarnon, Callington, Jacobstow, Landrake, Laneost, Launceston, Lezant, Lawhitton, and Warbstow. They are all of the transitional Norman period, and very much resemble one another, both in design and workmanship, and are particularly interesting as affording further evidence of the existence of a band or a school, or perhaps a guild of carvers and masons. In the discussion following the paper Mr. Gould drew attention to the ordinance directing the locking of fonts, which was enacted in Stephen's reign, and asked for information. This was not in force, he thought, for many years, but was seemingly re-enacted at a later period, as he knew of some instances in which the locking was apparently continued to the fourteenth century. The hon. secretary announced that, upon the invitation of the Mayor and Corporation, the Congress this year will be held at Newcastle-on-Tyne.

COMPETITIONS.

SEWAGE SYSTEM, FALMOUTH.—In a competition for a new sewage system at Falmouth, the scheme of Messrs. Richardson & Le Maitre, East Parade-chambers, Leeds, has been selected. The scheme placed second was by Messrs. Pollard & Tingle, 31, Old Queen-street, Westminster, S.W.; and the third was by Messrs. Richardson & Le Maitre, East Parade-chambers, Leeds.

EXTENSION OF ABERDEEN FISH MARKET.—The extension of this market has now been finished. The new buildings are 50 ft. wide and run along South Market-street for a distance of 430 ft., the wall along the street being constructed of red Ruabon brick, the inside being laid with brown glazed Ruabon brick so as to permit thorough flushing. At the junction of the old and new markets a new block containing telegraph and officials' office, restaurant, &c., and measuring 91 ft. by 50 ft., has been erected. The total cost is about 5,000*l.*, and Mr. R. G. Wilson, Aberdeen, was architect.

Illustrations.

VIEWS AND PLANS OF APARTMENT HOUSES.

OUR illustrations this week are all selected from those which accompanied Mr. E. T. Hall's valuable paper on "Flats" at the Architectural Association, printed on another page. We have devoted our plates entirely to this subject, not only in order to illustrate Mr. Hall's paper as fully as our space allows, but also because Mr. Hall has obtained for this occasion many drawings and photographs of foreign buildings of this class, which are not always easily to be had.

The illustrations of exterior architectural treatment are all from Vienna, a city in which a great deal of careful and sometimes rather novel design is expended on the architecture of apartment houses. Professor Deininger's "Romahof" building, as will be recognised, contains a good deal of original and effective treatment of decorative detail. The house on the Stefansplatz, by Messrs. Fellner & Helmer, is of more ordinary type of detail, and unfortunately stands on glass, but apart from this it is a fine and effective street building.

The second sheet shows examples of some of the surface decorations introduced on the front of Viennese houses, partly in tiles, partly in modelled stucco. We may think it a little overdone and wanting in reticence, but at all events it has, to English eyes, the interest of novelty.

The third sheet contains three German plans; the large triangular plan is traced from an original working drawing of the architect (Herr König), which was so covered with figures as to be barely intelligible in its original form. Unfortunately the names of the rooms were not given on the plan, so that they can only be guessed at; but we may say that it is a building of which a portion, commencing from the first floor, forms a private mansion; the outer portions of the ground floor are evidently intended to be let as shops; and the remainder of the building is an apartment house. In the smaller-scale plan of the Leon-Wernburg palace on the same sheet, we may point out the ingenious and effective plan of the rooms in the right-hand angle, whereby the difficulty of an irregular site has been made the occasion for giving a new interest to the plan. All these three plans are, we think, very suggestive in regard to the treatment of buildings of this class on irregularly shaped sites; it is for that reason that we have grouped them together.

The plans on the fourth sheet are chiefly Parisian, with one English example, and they mostly deal with more regular sites and more symmetrical planning. M. Nerrot's building in the Boulevard St. Michel is a fine example of a Paris house of this kind on a great scale, with its garden courts. M. Rives' small house in the Rue du Château d'Eau is an example of the manner in which the French succeed in packing the required rooms into a limited space, with a small internal area for light. The position of the water-closet, facing the end of the passage and with no window, will seem almost scandalous to English architects; it is possible that the absence of any window may be a mistake in the engraving from which the plan was taken, but this does not by any means follow; French architects are still quite capable of this kind of insanitary arrangement, and their clients, moreover, are quite satisfied with it.

BUILDING CONTRACTS FROM A BUILDER'S POINT OF VIEW.*

IN the olden days it was, as you know, the custom for the architect personally to superintend the erection of his own work, and so now, if perfect work is to be produced, it is essential that the architect and builder should be in sympathy one with the other, so that the true spirit of the design may be carried out. To ensure absolute perfection in workmanship, only approximate prices should be given, and the work executed upon a percentage upon cost basis, or at daywork prices. Either of these courses from a builder's standpoint may be considered ideal, and as such would not commend itself to the ordinary commercial proprietor, who, on the average, has far more consideration for his pocket than for architectural effect. There can, however, I think be no doubt that in the majority of cases bad workmanship is the result of low prices and strained relations between architect and builder, and when this fact is fully realised, and architects make up their minds to minimise competition to fair and reasonable proportions, and also make the conditions under which the builder has to work as easy and comfortable as possible, then, I think, they will find very little cause to complain either as to the quality of the workmanship or the manner in which it is executed.

To a builder the two most important factors in connexion with building contracts are the conditions or form of contract, and the bill of quantities. If the former is fair and reasonable and the latter correct and explicit, he may (should he know his business), with ordinary luck, rely upon getting through his work without losing any money, and if the conditions under which the contract is taken happen to be favourable and the competition not too keen, he may make a profit. Losses on contracts outside those occasioned by sheer misfortune, can, in nearly all instances, be traced to certain causes, and in the majority of cases these are (1) misconception of the conditions of contract, whereby you contract to carry out considerably more than you bargained for; or (2) inexplicitness on the part of the quantity surveyor. Speaking in this connexion, cases have come to my own knowledge where surveyors have been instructed in certain instances to make their quantities as inexplicit as possible, with a view to deceiving the competitors, and so keeping down the amount of the tender. I am pleased, however, to say, in the instances referred to, that the surveyors did not follow their instructions. With regard to the form of contract, for my own part I much prefer a sheet of notepaper saying that I am prepared to do certain work for a certain sum, to an architect's satisfaction, and specifying the terms of payment. It is obvious, however, that in a large number of cases, and with most people, this course would be unwise, and that a properly drawn form of contract is preferable, setting forth in precise terms what is agreed upon. Originally these contracts were drawn on behalf of the building owner by his solicitor, paid, I presume, so much per folio; the innocent builder of the days of our youth, confiding as a child, would not employ a solicitor to look after his interests, and being anxious to get the work would sign anything he was asked. As a consequence we have handed down to us forms of contract, which, I think I am safe in saying, many of us have signed without reading, and even if read, not understood, and which, if we had been legally held to them, would have resulted in our seeking fresh woods and pastures new. In recent years, however, this is changed, and although we are continually being asked to sign many different forms of contract, there is rarely much trouble in getting architects to see that there are two sides to every question, and that the builder is every bit as much in need of protection as the building owner. It is extremely rare for any contract now to be put before a builder which does not contain an arbitration clause, and yet fifteen or twenty years ago any man that asked for such a thing was regarded as a dangerous individual. It is strange that builders should have for such a long time existed without such a clause, and this may well be regarded as an example of their easy and tractable nature. All other contracts between business men invariabiy contain it, and, to my mind, in the building trade, with its many complications, it is all the more necessary, and as much from the employer's point of view as the builder's. The general impression seems to have been that unless the builder was entirely in the power of the architect, disputes would constantly be arising. Time, however, has proved differently, and as the insertion of the clause protects builders from unprincipled architects or so-called architects, it has also the effect of causing the exercise of more care on the part of employers and architects in the conduct of their works.

There are many different forms of contract, but those in most general use are that agreed upon by the Royal Institute of British Architects and the National Association of Master Builders, and also that issued by the Royal Institute of British Architects. Both of these are a most distinct improvement on those in use before they were issued, and are very similar the one to the other. The former one has since been objected to by the Royal Institute of British Architects, and has resulted in the issue, by them, of the latter. The difficulty arose over, I believe, the arbitration clause. In the original contract, in the event of any dispute arising, either party might immediately proceed to arbitration whilst the works were in progress. This was objected to, and in the form issued by the Royal Institute of British Architects, the following clause is inserted:—"Such reference, except on the question of certificate, shall not be opened until after the completion, or alleged completion, of the works, unless with the written consent of the employer or architect and the contractor." From my point of view, the clause in the original contract is much preferable; to a builder upon a large contract, dealing with men with whom he is practically unacquainted, it appears to me to be most vital. In the event of a dispute occuring in connexion with extra depths or other works to foundations, involving the expenditure by the builder of some thousands of pounds, if he is unable to get the matter settled as he proceeds, he may have it hanging over his head for three or four years, until all the circumstances are forgotten, and during which time he is also being kept out of his money. On the other hand, the argument may be raised that a contentious builder might start arbitrating at the commencement of a contract and go on arbitrating until the finish. This is a case which I do not think would ever occur, and in this my opinion is confirmed from my experience of the working of the arbitration clause. With this exception I would be prepared to agree to either form, both of which can only have been compiled after much careful thought and expenditure of time.

Much difficulty is, as a rule, experienced in dealing with Urban and Municipal Councils in connexion with forms of contract, they often requiring conditions much more drastic and arbitrary than any other body. They, however, are gradually learning wisdom, and when they find, as they often do, that respectable firms will not agree to their conditions, they are prepared to modify them. Doubtless the course they adopt is taken in self-defence, and if such a course is really necessary, and is founded on experience, they have my sincerest sympathy.

The forms of contract issued by the War Department, Admiralty, and Board of Works, are also fair and reasonable, and in many cases their terms of payment are more favourable.

Many architects adopt forms of their own. These, experience has taught me to be careful of, and always, if possible, avoid signing. With two such forms as those already referred to there is no necessity to go any further.

Speaking of forms of contract generally, the principal points the builder has to consider are (1) time clause; (2) terms of payment; (3) inability of proprietor to pay; (4) liability for acts of other persons or things; (5) maintenance clause; (6) arbitration clause.

As to the time clause. In the majority of cases this is more honoured in the breach than the observance, and for the reason that the time is named without thought, and in most instances is altogether inadequate. Considerable dissatisfaction is caused to the proprietor who cannot understand reasons for delay, and is therefore most anxious to get from the contractor damages to which he is not entitled. It is most decidedly to a contractor's interest to get his work done as quickly as possible; and for the benefit of all concerned a reasonable time should be appointed in which the work can fairly be executed, and to this both the contractor and the architect should be held, delays in many instances arising as much from dilatoriness on the part of the architect as on the part of the contractor.

In reference to the terms of payment. From time immemorial it has been usual to pay eighty per cent. on the value of the work executed and fixed in its place. Since this arrangement was instituted the times have considerably altered, and it is impossible for a builder now to obtain the same terms from merchants and manufacturers that he got eight or ten years ago. Then it was usual to be allowed on most goods four or six months' credit, and on timber six months, whilst in several cases twelve months' accounts were allowed. Now all timber, iron, stone, bricks, and, in fact, by far the largest portion of the materials used in a building, have to be paid for in a month following delivery, whilst in a few favoured

* A paper read by Mr. Frank Cowlin before the Bristol Society of Architects on the 14th inst.

cases a three months' account is allowed. This, you see, means practically a cash business, so that it is impossible to carry on anything like a large establishment on the old conditions. According to the terms of all contracts, all materials delivered on the ground become the property of the proprietor, and therefore they should be taken into consideration when the certificate is granted, and payment should be made on account of them. This you may say is liable to abuse in the case of a shaky builder, but by the exercise of some care and tact on the part of the clerk of works and architect in the granting of certificates, I fail to see how any difficulty can arise, and in any case the proprietor is protected as he has the goods, and also the margin of the reserve. With regard to the percentage to be paid, this should, I think, be increased to 90 per cent. If 80 per cent. was the standard twenty years ago, the manifest change in the conditions of trade since and the increase in competition and decrease in profits, fully justifies one in asking for the 90 per cent. Wages have to be paid weekly, and form, roughly speaking, 50 per cent. of a builder's turnover, and this, with the shortened terms of credit, make it most difficult to finance a builder's business; so much so, that no matter how profitable a business you may be transacting, you find it impossible to get on without borrowing from your bankers, for which luxury you have to pay pretty dearly.

As to the amount of the reserve. This, of course, varies with the amount of the contract, but for contracts up to 10,000*l.*, 10 per cent. is, I think, now a generally accepted amount. Beyond that sum, it is a matter of arrangement. Personally I fail to see the necessity of a large reserve or the need of retaining it for any length of time. Much, of course, depends upon the character of the builder, but in ordinary cases I think it is fair to pay half the reserve at the completion and the remainder at the settlement of the accounts, retaining some nominal sum for a further period of three months, sufficient to make good any defects that might occur in that time. Such an arrangement as this would be an incentive to builders to get their accounts squared up quickly, and much inconvenience and trouble to architects would be saved.

The next clause of importance is one which should make the proprietor liable to pay within a reasonable time after the deposit of the certificate. This is a point which is a very sore one with builders. They are expected to perform their part of the contract, but it is not at all unusual to find that after having obtained (may be, after considerable trouble) a certificate for a payment on account, it takes a further four or five weeks to obtain payment. A clause to protect builders in such cases should be introduced in all contracts, as I am glad to say it is in the forms issued by the builders and the Royal Institute of British Architects. Much trouble and annoyance would be saved also if a clause were inserted whereby payments are to be made at stated intervals, no matter how small or great, then the proprietor would be prepared to meet the certificates as they are presented. The next clause I wish to touch upon is one making the contractor liable for any loss or damage whatsoever to the premises from whatever cause arising and until the expiration of the term of maintenance, and is often introduced into contracts other than those I have mentioned. The contractors' liability should cease, as far as loss or damage is concerned, when the buildings are completed and handed over. The maintenance clause I have already touched upon. It is one in which a great deal is left to an architect to decide, and when he happens to be weak and the proprietor is strong the position of the builder is uncomfortable.

There are two clauses in a form of contract drawn up and used by an eminent firm of architects which are I think worthy of your consideration. The first is the reference clause, which is as follows:—

"The architects shall, during the progress of the works, have the powers above described, and shall be the sole judges in all matters relating thereto as to the interpretation of the drawings and specification as to the execution, condition, and extent of the work from time to time actually executed, as to the quality of the materials used, or to be used in and about the several works, and as to the degree of despatch with which the works should be conducted and carried on, and in all matters of account connected therewith, and as to any question which may arise as to the progress and conduct of the works or deviation from the specification and drawing, and in respect thereof, their decision shall be final. But in case after the building shall be completed any dispute or difference shall arise between the employer or the architects on his behalf, and the contractor in respect of the contract or of anything connected therewith or relating thereto or to any additional works or variations thereon or as to what addition, if any, ought in fairness to be made to the amount payable to the contractor by reason of the works having been delayed through no default of the contractor or by reason or on account of any directions or requisitions of the architects, involving increased cost to the contractor beyond the cost properly attending the works according to the true intent and meaning of the signed drawings and specification or as to the construction of these presents, such difference shall be referred to the arbitration of ——"

The point I particularly wish to refer to is that portion which says, "or as to what addition, if any, ought in fairness to be made to the amount payable to the contractor by reason of the works having been delayed through no default of the contractor or by reason or on account of any directions or requisitions of the architects involving increased cost to the contractor beyond the cost properly attending the works executed according to the true intent of the signed drawings and specification."

Contractors are continually being put to considerable expense by the causes enumerated above, and although it must be patent to both architect and clerk of works that they are fairly entitled to it, I have only once in my own experience heard of an architect granting such a sum, except under pressure. It should be distinctly understood in such cases that a builder is to be paid what is fair and reasonable, and this should be left to the architect, and failing him, arbitration.

The second clause in the private form of contract referred to is as follows:—

"Notwithstanding anything hereinbefore contained the contractor shall not be responsible for the act, default, or omission of any other contractor employed by the employer in or about the execution of any of the works comprised on the specification or in or about the execution of any other works upon the site."

This speaks for itself, and I, speaking from very bitter experience, can testify to its importance.

This, gentleman, in brief, is all I have to say as to the conditions of contract, and I now come to what is just as important from a builder's point of view, and that is the question of quantities. In this connexion it is very pleasing to note that during the last few years there has been a most distinct improvement in the quality of the quantities supplied, and that the custom of allowing the surveyor to measure up for and settle all accounts is becoming more general. The advantages of this, from both sides of view, must, I think, be obvious; and whilst perhaps it may be more advantageous to a certain class of builder to settle accounts with an architect, who is not so well up in prices and variations as a fully qualified surveyor, it is to the benefit of the trade generally to leave the accounts in the hands of the latter; any profits made have then to be made on the basis of the prices quoted, and not on the basis of one's powers as a debater, to put it as mildly as possible.

A most important point in connexion with bills of quantities, and one upon which in this district there are many diversities of opinion, is the question as to whether they shall be the basis of the contract or not. Many builders I have spoken to upon the subject prefer that they should not, and that the custom generally prevailing here, of checking the quantities and then taking them as correct, is preferable. Personally, I cannot agree with them. It is not part of a builder's business to check quantities; and in a large contract it means a very great cost. In my opinion, it is not fair that a man should be paid for work he does not do, and in this system this most invariably occurs.

It is usual for a builder in checking quantities to discover only items that are short or entirely omitted, and to get these allowed, whilst nothing is said about items that are full; and if a builder is of a particularly suave and persuasive nature, he is enabled to get more allowed him than he is fairly entitled to. A surveyor, if he knows his business, should be able, and is able, to take off quantities that are correct, and upon these the contract should be based. This is the system that obtains generally in London and the North of England, and is found to work satisfactorily. In many instances, notably in Government work, the quantities are guaranteed. This is practically the same thing as making them the basis of the contract, and it speaks volumes for the character of their work that surveyors are prepared to do this even when the contract amounts run into several hundreds of thousands of pounds.

The main results of this system are:—1. A vast improvement in the quality of the quantities, a surveyor's reputation entirely depending upon their exactitude, whilst under the old system any mistakes might easily be covered up. 2. It has shown builders that a complete knowledge of the cost of their work is absolutely necessary, and this must tend to improve prices and the status of the trade generally. If a builder is only paid for exactly the amount of work carried out, it follows that his prices must be correct if he is to make a profit. He cannot assume, as one does at present, that the quantities will be full with one man and short with another. It reduces the speculative character of the business, and enables a firm to more fully trade upon their merits. It is the custom in Scotland to remeasure the work on completion, and pay at the original schedule rates. This, assuming the original schedule to be correct, is practically the same as making the quantities the basis of the contract, and this system is found to work satisfactorily, and is the outcome of previous experience.

The only argument, as far as I can see, that can be used against it is, that possibly, in the event of the quantities being incorrect, the building owner cannot tell exactly what he will have to pay for his work when he starts. This argument speaks little for the ability of the surveyors, and the contingency named is, I think, one which would very rarely occur.

The next question I would like to touch upon refers to prime cost sums and provisional amounts. Different surveyors have different ways of considering the term prime cost. It is usual to mention that it means net cost, and then the question naturally arises, what is net cost? Does it mean net cost to the contractor or net cost to the ordinary consumer, and this opens up the question of trade discounts, and then the trouble begins. It would, I think, be well if trade discounts could be altogether abolished. In tendering, you are told to add your profit, and this I usually make a point of doing. If there are a large number of prime cost amounts I usually lose the contract, which is obtained, perhaps. by a contractor of a more speculative nature, who does not add any profit at all, but who, in the settlement of accounts, does not divulge the net cost of the articles in question, and perhaps by prearrangement with the merchants supplying the goods, or by argument, or, to use a slang expression, "bluff," is enabled to obtain the trade discount, and in all probability obtains a larger percentage of profit than I should have added, and at the cost of the proprietor.

Many firms, especially when they quote the architect direct, refuse to allow any discount, or, if they do allow it, it is distinctly stated in their quotation, so that no misconception can arise.

It is fair to assume that a builder must make a profit on these amounts, and if it could be generally understood that all architects and surveyors would allow 10 or 15 per cent., or any stated percentage, upon the actual net cost to the builder, of the goods in question, and this sum were added by the surveyor in preparing the quantities, much discussion, misconception, and bad feeling would be done away with. We have lately tendered for a contract under Messrs. ——, whose surveyors are Messrs. ——, and in their conditions in reference to the prime cost amounts they have the following clause:—"The whole of the provisional sums and prices throughout are understood to bear a 10 per cent. discount to the contractor, and he is, it is understood, entitled to no further profit on these provisional amounts." This, to my mind, is a very good way of dealing with the difficulty, and as they also have a condition that the receipts for the various goods are to be produced if necessary, they are well protected against any unscrupulous contractor.

In one contract we are carrying out, the question of prime cost sums is dealt with as follows in the specification by special note:—

"Wherever the word 'provide' or 'prime cost' is used, the amounts thus mentioned are to be expended at the direction of the architects, and the architects may require the amounts thus mentioned to be paid by the contractor net to any tradesman

selected by them on their certificate, or such amounts may be certified on the proprietor direct and deducted at the settlement of the accounts."

In the quantities there is a special bill for provisional sums and works in connexion with them. As each sum is mentioned, so the discount upon it, if any, is given. At the end of the bill a clause is inserted which summarises the amounts in the following terms :—

"The total sum of the above provisional amounts is say, 4,000*l.*, of which part will be expended at contract rates or deducted at the settlement of accounts, and part is subject to discounts, as stated; but, as regards the sum of, say, 3,500*l.*, allow for all builder's profit and establishment charges," &c.

This, perhaps, in a large contract which contains a large number of provisional sums, is the best way of dealing with them. There can be no misconception, and if the contractor does not add his profit he does not get it.

A very general fault I find in quantities in this district is that there are not enough provisional sums included. Oftentimes, more particularly in alteration works, one has to price items, the cost of which it is impossible accurately to estimate until the work is being done. In all such cases a provisional sum should be inserted at the discretion of the surveyor, and the matter adjusted at schedule rates.

Again, with regard to some items the descriptions are often most inadequate. From a builder's standpoint, all items should be described so as to render it unnecessary for him to be continually referring to the drawings when preparing his estimate. It is not at all unusual to find the thickness of walls omitted in items for drawing openings for doors and windows, and the sizes of the same are also left to the imagination of the builder. On inquiry you are of course referred to the drawings.

The preparation of estimates is a most serious thing in a builder's business. Unless he is in a very large way he has to do most of the pricing himself, and when one considers the time this occupies and the number of estimates he has to send in for every one he is fortunate enough to get, the necessity for the quantities to be as explanatory and explicit as possible is apparent.

In quantities, as with everything else, it is the best that is the cheapest, and I am confident, from my own experience, that the interests of the proprietor and also the builder are best safeguarded if a first-class surveyor prepares the quantities and adjusts the accounts. Much more might be written upon this interesting subjcct of quantities, but time does not permit.

Another important factor in considering building contracts is the clerk of works, so important a factor that I am of opinion that he deserves a paper to himself. Too much consideration cannot be given by an architect in selecting his clerk of works. One man, if he is not thoroughly conversant with his work both practically and theoretically, may make the work cost 5 or 10 per cent. more than another man, whilst both attain the same result. In many instances they have absolutely no conception as to the duties of their position, but imagine that all they have to do is to see that proper materials are used. My own idea is that the clerk of works should be the architect's representative upon the works, and as such he should be prepared to obtain and give all information necessary to the proper carrying out of the contract; he should be responsible, with the builder's foreman, for the proper setting out of the various parts of the building, and should also, in a measure, be responsible for the time taken to complete the contract. It would be a very good thing if they could be engaged at so much per contract. I think architects would then find their works executed with much more promptitude and despatch.

There are many excellent clerks of works I have had to do with, and I have to acknowledge many kindnesses at their hands, but I really do not think that architects generally appreciate the harm and annoyance which an incompetent or unprincipled man causes a contractor, who in the majority of cases is powerless to complain, for reasons which must be obvious.

In conclusion, there are three points in building contracts that I would strongly impress upon architects :—1. The necessity of keeping up all approximate quotations. Nine-tenths of the troubles between architect and builder, and also the proprietor, arise from the fact that in the majority of cases the cost is considerably more than was expected. 2. To remember that it is essential for the good of the community that the builder makes a profit. If he is not allowed to do it fairly, he is, I fear in many cases, apt to do it unfairly. 3. Always be prepared to grant certificates if the money is due. The financial question is a most important one with builders, and whilst there is no difficulty in obtaining the first payment, one has often to write two or three times, without getting a reply, in one's efforts to get further certificates.

Speaking as a contractor who has sufficient capital for the amount of business done, I can honestly state that more worry and anxiety is caused the builder over this question than by any other detail in his business.

ENGINEERING SOCIETIES.

INSTITUTION OF MECHANICAL ENGINEERS.—From the annual report of this Institution we learn that the number of members was, at the close of the past year, 3,165. Thirty-three members have died during the year, among them Lord Armstrong, who was a past-president. With a view to the formation of a his-historical museum, relating to mechanical engineering progress, several gifts of value have been promised, and members are invited to help with suitable contributions of drawings and models. The summer meeting, extending over three days in June, was held in London, when the members of the American Society of Mechanical Engineers accepted the invitation of the Institution, and attended the business meetings and the excursions in considerable numbers. The numerous letters which have since been received from the United States evince a thorough appreciation of the reception accorded to the visitors by the Institution. The Council were requested by the Executive of the Glasgow International Engineering Congress to take an active interest in its success, and after full deliberation and consultation with the officers of other institutions, the Council have consented to take charge of the mechanical section of the Congress, the meetings of which will be held during the first week of September, 1901. They have also decided that these arrangements should not interfere with the ordinary summer meeting of the Institution, which will be held during the last week in July at Barrow-in-Furness.

ANCIENT LIGHTS.

THE following Report has been adopted by the Council of the Royal Institute of British Architects, and intimation of such adoption has been conveyed to the Council of the Surveyors' Institution :—

Whereas by a resolution of the Royal Institute of British Architects, passed at the general meeting of April 9, 1900, it was decided :—

"That this meeting considers an alteration in the law of Ancient Lights to be urgently needed, and requests the Council to put itself into communication with the Council of the Surveyors' Institution without delay, with a view to the co-operation of that body in taking such steps as may be necessary to secure an amendment";

And whereas the Surveyors' Institution, having been invited so to do, agreed to act in conjunction with the Royal Institute and to appoint a Committee to deal with such matters;

And whereas a Joint Committee, consisting of the undersigned, have held meetings and have carefully considered the subject of the above reference;

And whereas such Joint Committee are of opinion that the law and practice of Ancient Lights is exceedingly unsatisfactory in several respects and requires amendment in the manner herein suggested:

Therefore the Joint Committee recommend that the law and practice in respect of Ancient Lights be amended as follows, viz.:

1. The right to ancient lights shall, in all cases where such rights have not been already acquired, be limited to a right to receive light sufficient for all ordinary purposes, but shall not include a right to light of extraordinary amount for special purposes.

2. After the passing of the Act the owner of any tenement not at any time servient to some neighbouring tenement, but over which such neighbouring tenement would in course of time acquire dominant rights, may serve upon the owner of such neighbouring tenement a formal notice, in form and manner prescribed by the Act, and may advertise the same in the daily papers, and register the same at the Land Registry, where one exists, of the district, or, where no such Land Registry exists, at the offices of the County or Municipal Council of the locality. Such notice shall have the same effect as though an interruption had been submitted to for one year, and such notice shall run with the land.

3. The owner of a building which is about to be taken down may cause plans, sections, and elevations to be prepared, and such drawings, if they be attested by the District Surveyor in London, or the County or Borough Surveyor elsewhere, shall be accepted as legal evidence. Such drawings shall, on demand, be certified and registered by the officers above-named, who shall be paid fees on a scale appended to the Act.

4. No building erected after the 1st January, 1905, shall acquire any fresh rights of light or air where it abuts on any street, highway, road, court, or alley used by the public, or as an access to various tenements, either held in the same ownership or in various ownerships.

5. The owner, lessee, or occupier of any tenement, who considers that his ancient lights will be or have been interfered with by the erection or proposed erection of new premises or alterations to old ones, shall have the right to inspect (or have inspected on his behalf) the drawings which shall be prepared by the building owner of the premises which cause such interference; or if no drawings are in existence, to be informed of the intentions of the building owner, and to take or have taken such particulars from the drawings or information or from the building itself, if erected, as may enable him to ascertain where there is ground for complaint.

6. If such neighbouring owner, lessee, or occupier considers that the lights of his premises will be interfered with, he shall, within seven days from obtaining such information as aforesaid, give notice in writing by registered post of his objection to the building owner together with the name and address of a surveyor, who shall have power to act, on his behalf.

7. Within seven days of the receipt of such notice the building owner shall acknowledge the said notice, by registered letter, and inform the person from whom he received notice of objection of the name and address of his surveyor, who shall also have power to act on his (the building owner's) behalf.

8. Such two surveyors so appointed shall, within ten days of the date of the appointment of the last of them, select and appoint an umpire under their hands in writing, such umpire being a member of the Royal Institute of British Architects or of the Surveyors' Institution. The first-named two surveyors shall within the like period meet and discuss the points raised by the owner, lessee, or occupier, with a view of settling the same, and failing coming to a settlement they shall refer the matter to the umpire appointed as aforesaid. The said umpire shall view the site and buildings of both plaintiff and defendant, and shall have power to take such evidence upon oath as he may think necessary, and he shall, within twenty-one days from the date of the matter being placed before him, or within such extended time as he may from time to time determine, issue his award, in which he shall determine either or all of the following points: the right of the building owner to carry out his intended works, the alteration (if any) necessary to be made in carrying out the proposed new buildings or alterations to prevent or lessen the obstructions complained of, and the amount (if any) of compensation of every description to be made to the owner, lessee, or occupier, the alterations or improvements to the adjoining premises by light-reflecting surfaces, enlargement of lights, heightening of premises, or other means, the amount of costs to be paid by each or either party, and generally all matters required to arrive at a settlement.

9. In the event of either party neglecting to appoint a surveyor within the time prescribed, or of the unwillingness of the umpire appointed to act, and no other umpire being agreed upon within a further period of ten days, either party shall apply to the President for the time being of the Royal Institute of British Architects, or the President of the Surveyors' Institution, who shall appoint an umpire forthwith, with all the powers as before described.

10. If either party shall be dissatisfied with the decision of the umpire, he may appeal to an Appeal Committee to be formed of nine persons, appointed annually—viz., three architects to be appointed by the Royal Institute of British Architects, three surveyors to be appointed by the Surveyors' Institution, and three barristers to be appointed by the Home Office. Three members, of whom one shall be an architect, one a surveyor, and one a barrister, shall form a quorum. The decision of this committee, save as hereafter mentioned, shall be final, and they shall have full discretion as to costs. Before giving a decision the members sitting on the case shall personally visit the premises of the plaintiff and defendant, and shall have power to decide whether, and, if so, to what extent, the proposed new buildings shall be amended, or the dominant premises altered.

11. In the event of either party refusing to accept the decision of the committee in all cases in which a larger sum than 500*l.* is awarded, either in money, damages, or works, or in which the interference with the proposed works exceeds 500*l.*

in value, he shall have power within one month from the publication of the said decision to bring the matter before the High Court of Justice by a summary process, The Court shall have the full powers set out in clause 8 aforesaid.

12. In any action to restrain building on the ground of its interference with the rights of light, and whether an interim injunction has been obtained or not, either party may apply to the Judge by summons, either to hear the same with an assessor or assessors, or to refer the same to arbitration in accordance with clauses 8 and 10. If at the hearing of such application or motion for injunction it appears to the Judge that the claim may be satisfied by damages, he may himself refer the case to such arbitration, and if he considers that the action for an injunction has been commenced unreasonably or unnecessarily, may order the party bringing such action to pay the defendant's expenses and costs on such scale as he may deem fit.

And the Joint Committee further recommend that they be empowered to expend the necessary funds in drafting a Public Bill to carry out the above provisions.

The Joint Committee also beg leave to submit to the Councils of the Royal Institute of British Architects and the Surveyors' Institution, for their consideration, copies of correspondence that has taken place between the Committee and the Council of the Incorporated Law Society.

(Signed)
T. Roger Smith (Chairman)
Edw. A. Gruning
J. Douglass Mathews
J. Fletcher Moulton, Q.C.
Herbt. Thos. Steward
Alex. R. Stenning
Howard Chatfeild Clarke
George M. Freeman, Q.C.
} Joint Committee.

December, 1900. W. J. Locke, Secretary.

The following is the correspondence referred to in the concluding paragraph of the report :—

30th October 1900.

The Secretary, Incorporated Law Society.

DEAR SIR,—

With reference to the resolution carried at the Annual Provincial Meeting of the Incorporated Law Society recently held at Weymouth, which it is reported in the newspapers ran as follows :—"That the Council take steps with a view to getting the Law (of Ancient Lights) considered by the Legislature, and if they thought fit to co-operate with the Royal Institute of British Architects and the Surveyors' Institution," I have the honour to inform you that a Joint Committee of the Royal Institute of British Architects and the Surveyors' Institution, which includes two Queen's Counsel, hon. members respectively of the Royal Institute and the Surveyors' Institution, is at present sitting, with a mandate from these two bodies to take such steps as may be necessary to secure an amendment of the Law of Ancient Lights.

Should such a procedure be acceptable to the Council of the Incorporated Law Society, the Joint Committee would be very happy, before taking any public action, to communicate to them the result of their deliberations, with a view to co-operating with the Incorporated Law Society in promoting a Bill in Parliament to secure an amendment of the existing law.

I should be glad to lay the reply of your Council before the Joint Committee at an early date.—I am, dear sir, yours faithfully,

T. ROGER SMITH,
Chairman of the Joint Committee.

Law Institution, Chancery-lane, W.C.
November 10, 1900.

T. Roger Smith, Esq., F.R.I.B.A.

DEAR SIR,—I am directed by the Council of the Incorporated Law Society to thank you for your letter of October 30, and to say that the Council will be obliged if you will let them see the draft of the proposed Bill when framed, and that they will give it their careful consideration.—I am, dear sir, yours faithfully, E. W. WILLIAMSON,
Secretary Incorporated Law Society.

BOOKS RECEIVED.

CROYDON : NEW AND OLD. (HOMELAND HANDBOOKS). By E. A. Martin, F.G.S. (The St. Bride's Press. 6d.)

JOURNAL OF THE SANITARY INSTITUTE.—Vol. xxi. ; part 4. (E. Stanford.)

THE STUDENT'S COLUMN.—Our Student's Column article ("Sanitary Fittings and Plumbing") is unavoidably held over until next week.

MEETINGS POSTPONED. — The ordinary meeting of the Institution of Civil Engineers on Tuesday, January 22, was adjourned, without the transaction of business, to Tuesday, January 29. The Students' Meeting appointed to be held on Friday, January 25, is adjourned to Friday, February 1.—The Anniversary Dinner of the Institution of Junior Engineers, which was to have taken place on the 26th inst., has been postponed.

THE LONDON COUNTY COUNCIL.

THE first meeting of the London County Council after the Christmas recess was held on Tuesday in the County Hall, Spring Gardens, Mr. Torrance (Vice-chairman) presiding in the absence of Alderman W. H. Dickinson.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Paddington Borough Council 9,400*l.* for the purchase of land and reconstruction of bridge; the Deptford Borough Council 9,700*l.* for brick sewer works; Lewisham Borough Council 1,150*l.* for paving and drainage works, and 5,600*l.* for purchase of an open space; Battersea Borough Council 2,460*l.* for erection of sawmill, &c.; Hampstead Borough Council 4,386 for additional cells to dust-destructor; Kensington Borough Council 1,100*l.* for street improvement; Lambeth Borough Council 2,650*l.* for underground convenience; St. Pancras Borough Council 50,000*l.* for the erection of baths; Woolwich Borough Council 7,600*l.* for a public library, and 8,670*l.* for various purposes; and Mile End Old Town Guardians 2,980*l.* for the erection of cottage homes.

List of Rates of Wages and Hours of Labour.—The same committee reported as follows, the recommendation being agreed to :—

"We have received a notification from the London Master Builders' Association that by agreement between masters and men an advance of ½d. per hour has been made, as from January 1, 1901, in the rates of wages paid to bricklayers. We therefore recommend that that rates of wages inserted in the Council's list of rates of wages and hours of labour as payable to bricklayers be amended, and that the rate be increased as from January 1, 1901, by ½d. per hour."

Bridges.—The General Purposes Committee reported as follows, the recommendations being agreed to :—

"We have received a joint memorandum from the Bridges and Improvements Committees stating they have had under consideration a suggestion to the effect that in future all bridges should be constructed by the Bridges Committee, except in cases where a bridge improvement is subsidiary to a street improvement, and that after consultation the two Committees have agreed to a form of amendment of the orders of reference to them, which, they believe, will assist the work of the Council. We concur in the proposals of the Bridges and Improvements Committees, and accordingly submit them for adoption. We recommend—

(*a*) That the following addition be made to the orders of reference to the Bridges Committee :—

'In all cases in which the formation or widening of a bridge over a road, railway, or canal is the object of the improvement, the Bridges Committee shall take all initial proceedings in connexion with the work of construction of such bridge, and, subject to the sanction of the Council, shall carry out the scheme. In all cases in which the formation or widening of bridges over roads, railways, or canals forms part of a street improvement, the Improvements Committee shall consult the Bridges Committee as to the design for the structure; after all necessary arrangements shall have been made by the Improvements Committee, the Bridges Committee shall undertake the work of construction of such bridge, and upon completion thereof shall hand it over to the improvements Committee in connexion with the remaining portions of the improvement undertaken by the Improvements Committee.'

(*b*) That the following words be omitted from the fourth paragraph on page 249 of the present order of reference to the Improvements Committee, viz., 'including the formation or widening of viaducts or bridges over roads, railways or canals where such works form an integral part of a street Improvement,' and that the following words be substituted :—'In all cases in which the formation or widening of bridges over roads, railways, or canals forms part of a street improvement, the Improvements Committee shall consult the Bridges Committee as to the design for the structure; after all necessary arrangements shall have been made by the Improvements Committee, the Bridges Committee shall undertake the work of construction of such bridge, and upon completion thereof shall hand it over to the Improvements Committee in connexion with the remaining portions of the improvement undertaken by the Improvements Committee.'"

Fire Exhibition in Berlin.—It was recommended by the General Purposes Committee that no part be taken in the International Fire Exhibition to be held at Berlin in 1901.

Mr. Campbell expressed the hope that the Council would see its way to be represented at the Exhibition. He thought it would be a gross mistake not to send some appliances, and moved that the recommendation be referred back.

Mr. Lawson seconded the amendment, which was carried.

Horton Estate : Working Colony for Epileptics.—The Asylums Committee recommended : "That, subject to the approval of the necessary plans by the Secretary of State, the estimate of 89,000*l.* submitted by the Finance Committee for the erection of buildings, &c., for an epileptic colony on the Horton Estate, for the accommodation of 300 insane male epileptic patients and staff, be approved."

"The area decided for the purpose of the colony is triangular in shape, and about 127 acres in extent. The site is bounded by main roads on two of its three sides, and is well divided by hedges in which there are a number of trees. A public footpath runs across the land, dividing it into two sections, the larger of which, 80 acres in extent, is the site of the proposed colony buildings. The buildings will consist of eight villas of two separate types, each designed to accommodate thirty-six patients and two attendants. In each villa a food and clothes store and a sanitary annexe will be included, and each will contain two single rooms. The villas will be single-story buildings, it being considered undesirable to house epileptics in two-story buildings, and, in addition, the one-story building is cheaper. There will be a house for the bailiff or other sub-officer, a residence for the medical superintendent, a block of administrative buildings which will include committee rooms, offices for the general staff, quarters for assistant medical officer and inspector, and a block for those attendants not accommodated in the villas, these four latter buildings being the only two-floored buildings in the colony. Attached to the administrative buildings will be (*inter alia*) the infirmary, which will accommodate twelve patients and include six single rooms, two being also padded, and a common dining-hall which will seat 320 persons, and will also be used for religious and recreative purposes, the patients taking their other meals in their own villas. The houses of the medical superintendent and bailiff will be of stock brickwork up to the first floor level, and above that finished in rough cast. The administrative centre and steward's store will be in red brickwork, the corridors in stock work and red brick. The external walls of the recreation hall will be finished in rough cast, with red brick buttresses. Four of the villas will be wholly in red brickwork, the remaining four in rough cast, and the whole of the roofs will be tiled. The boiler-house, tower, and chimney will be stock work, with red gauged arches, and the internal walls will be plastered in all buildings except the tower and boiler-house. The total number of patients for whom accommodation will be found in the villas is 288, accommodation being provided in the infirmary for twelve patients, making a total of 300. There will be twenty-two single rooms in all, but these are not included in the number of beds available nor in the computation of the cost per bed. The total resident staff provided for is a medical superintendent, an assistant medical officer, an inspector, and thirty-three attendants, being approximately one attendant to 9·1 patients. The villas will be heated by double fireplace hot-air stoves. The single rooms in the infirmary will, in addition, be heated by steam pipes, and low pressure steam heating will be employed for the steward's stores, dining-hall, corridors, &c. A simple system of telephones, fire alarms, &c., will be provided, each villa being in communication with the administrative centre. The lighting will be by electricity, to be supplied from the central station already approved by the Council, and the water supply will be obtained from the well now being sunk on the estate. The laundry at the Manor Asylum and the Horton Asylum, when completed, will be available for the colony buildings. It is proposed to include the construction of the main roads in the building contract, but not the minor roads, which we anticipate will be made by patients. The drainage arrangements are designed to deliver the sewage on to the Epsom sewage farm direct, which is adjoining, if an outfall is provided by the Epsom Urban District Council, but in the event of the negotiations with Epsom for this purpose proving unsuccessful, it will be necessary to re-arrange the system, which it is estimated would entail an extra expenditure of 1,100*l.* above the estimate submitted. The asylum's engineer's estimate of the total cost of the scheme amounts to 89,000*l.*, or 296*l.* 13*s.* 4*d.* per bed for 300 patients. To this sum, however, should be added the grant of 3,000*l.* made by the Council in January, 1899, of which sum about 1,600*l.* has been expended. With this addition the total cost would be 306*l.* 13*s.* 4*d.* per bed."

Mr. Beachcroft said that something like a year ago the Council authorised the Asylums Committee to undertake a new system for the housing of epileptics, and the preliminary estimate was then 66,000*l.* for the building, and the cost per head would be 220*l.* Now they were told that the cost of the building would be 89,000*l.*, and the cost per head 306*l.* It was because they were told that the cost per head would be lower than at the Horton Asylum that the Council decided to go in for the experiment. As a matter of fact, the cost

would be greater than the cost at Horton. He asked whether, even although they had spent 1,600*l.* on investigation, it would not be better to pause before going in for such a very expensive scheme.

Dr. Cooper complained that directly the Committee tried to make a new departure in the treatment of lunacy there was an attempt to deter them. The colony would be in advance of any German or American scheme, and was a scheme, if carried out, which the Council would have cause to be proud of.

Mr. Hubbard explained that the cost of building material and wages had largely increased, and that they had to meet the demands of the Lunacy Commissioners, which led them into further expenditure.

The recommendation was carried.

High-street, Kensington, Improvement.—The Improvements Committee recommended, and it was agreed,

"That the supplemental estimate of 96,500*l.* submitted by the Finance Committee in respect of the Kensington High-street improvement be approved, and that the Improvements Committee be authorised to incur further expenditure on capital account up to that amount for the purpose of the improvement in question."

Fire Station, East Greenwich. — The Fire Brigade Committee recommended, and it was agreed,

"(*a*) That the Council do sanction an expenditure of 13,100*l.* for the work of erecting the East Greenwich fire-station; that the work be executed by the Council without the intervention of a contractor, and that the drawings, quantities, specification and estimate be referred to the manager of works for that purpose.

(*b*) That the Council do authorise an expenditure of 750*l.* in connexion with the electric light installation at the East Greenwich station and for incidental expenses arising out of the erection of the station."

By-laws as to the Drainage of Buildings.—The Public Health Committee reported as follows :—

"On December 18 last the Council on our recommendation resolved to inform the Local Government Board that it did not think it desirable to delay the confirmation of its Drainage By-laws in order that they might be considered by the Councils of the Metropolitan Boroughs, seeing that the Vestries and District Boards were given the opportunity of making suggestions on the draft, and that their observations were carefully considered.

The Board now state that they have informed the Borough Councils who asked for an opportunity of discussing the By-laws that the Board will consider any further representations they desire to make, but that these representations should be confined to matters not already dealt with, and should be submitted as early as possible."

Tenders.—The Fire Brigade Committee recommended and it was agreed, that the tender of Messrs. Johnson & Co. to execute for 204*l.* 9s. 5d. the repairs and painting required at the Waterloo-road station be accepted.

The Main Drainage Committee recommended and it was agreed, that the offer of Messrs. L. J. & C. Seager to supply for 290*l.* 3s. 4d. certain new parts required for the circulating pumps of the four beam-engines at the Crossness outfall be accepted, and that the work of fixing the parts be carried out by men employed by and under the supervision of the superintendent.

St. Clement Danes and St. Mary-le-Strand Churchyards.—The Improvements Committee recommended and it was agreed, "That the action of the Improvements Committee in arranging with the London Necropolis Company to undertake, at an estimated cost of 650*l.*, the work of laying the foundations of the dwarf wall and railings to be erected around the portions of the churchyards of St. Mary-le-Strand and St. Clement Danes churches not required for the purposes of the Holborn to the Strand improvement be approved."

Middle Level Sewer: Proposed New Sewer Scrubbs-lane, Hammersmith.—It was agreed that an advertisement be issued inviting tenders for the extension of the middle-level sewer to Mitre Bridge, and for the construction of a sewer along Scrubbs-lane from the county boundary to Waldo-road, and a length of sewer under the existing ditch forming the overflow from the Counter's Creek sewer, in accordance with the plans and specification prepared by the engineer.

Precipitation Operations during 1900.—The Main Drainage Committee reported as follows :—

"We submit for the information of the Council the following table showing the quantities of sewage treated, chemicals used, and sludge sent to sea, as well as the quantity of refuse intercepted at the gratings at each of the outfall works at Barking and Crossness during the year ended December 31, 1900 :—

	Barking.	Crossness.	Total.
Sewage treated	48,508,000,000	36,101,000,000	84,609,000,000 galls.
Maximum daily flow	263,502,000	179,965,062	—
Minimum daily flow	72,810,000	64,623,290	—
Lime used	12,999	7,455	20,454 tons.
Proto-sulphate of iron used ...	2,918	2,011	4,929 "
Sludge sent to sea	1,574,000	798,000	2,372,000 "
Average per week	30,270	15,346	45,616 "
Refuse from gratings	4,176	813	4,989 "

Comparing the above figures with the returns for the preceding year, we find that the increase in the quantity of sewage treated is 6,929,186,000 gallons, and in the quantity of sludge sent to sea 82,000 tons.'

The Council adjourned shortly before 7 o'clock, immediately the death of the Queen was announced.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on Tuesday the following applications were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated :—

Lines of Frontage.

Lewisham.—Houses on the north and east sides of Southend-lane, Lower Sydenham (Mr. F. J. Smith).—Consent.

Deptford.—One-story shops on part of the forecourts of Nos. 122 and 124, New Cross-road, Deptford (Mr. R. Whaley for Mr. J. Murray and Miss A. Johnson).—Consent.

Kensington, South.—That the application of Mr. P. E. Pilditch for an extension of the period within which the erection of a building on the forecourt of Messrs. Barker's furniture depository on the south side of Pembroke-road, Kensington, was required to be commenced, be granted.—Agreed.

Paddington, South.—A conservatory in front of No. 19, Porchester-terrace, Paddington (Mr. M. Garbutt for the Metropolitan Railway Company and Mr. G. P. Ness).—Consent.

Mile End.—No order with respect to the application of Mr. F. A. Walters on behalf of the Rev. W. Donlevy, for consent to the rebuilding of the Church of the Guardian Angels on the north side of Mile End-road, Mile End, between Nos. 373 and 377.—Agreed

Bow and Bromley.—A one-story addition upon part of the forecourt of No. 86, Bow-road, Bow (Messrs. Holman & Goodrham for the Royal London Friendly Society).—Refused.

Kensington, South.—An iron and glass shelter at the entrance to No. 19, Bolton-gardens, Kensington (Messrs. W. T. Allen & Co. for Mr. L. Samuel).—Refused.

Dulwich.—The erection on three sites on the south side of East Dulwich-road, Camberwell, one of the sites abutting also upon Oakhurst-grove, of dwelling-houses (Mr. W. E. Deane for Mr. A. J. Walke).—Refused.

Finsbury, East.—The rebuilding of Nos. 228 and 230, Old-street, Finsbury, to an advanced line of frontage on the upper floors (Messrs. Crickmay & Zimmerman for Mr. A. Lefever).—Refused.

Greenwich.—An hotel, with stables, on the south-east side of Beaconsfield-road, Westcombe-park, Greenwich, at the corner of Mycenæ-road (Mr. M. L. Saunders for Mr. F. Bell).—Refused.

Hackney, Central.—A house and warehouse at the rear of No. 44, Mortimer-road, Kingsland, to abut upon Downham-road (Mr. J. B. Watts).—Refused.

Lewisham.—A house, with a shop on the ground floor, and three dwelling-houses with bay-windows, on the west side of Bromley-road, Lee, at the corner of Ronver-road (Mr. A. Eke).—Refused.

Projections.

City of London.—An iron and glass shelter at the entrance to the Holborn Viaduct Hotel, Holborn Viaduct, City (Mr. H. Godbold for Messrs. Spiers & Pond, Limited).—Consent.

Kensington, South.—A four-story bay-window in front of No. 3, Victoria-road, Kensington (Messrs. C. Saunders & Son for Mr. J. G. Broomfield).—Consent.

Marylebone, East.—A balcony at the second floor level in front of Nos. 14 and 14A, Princes-street, Cavendish-square (Mr. A. E. Hughes for Mr. E. G. Betts).—Consent.

Newington, West.—Five projecting arc-lamps on the parapet wall in front of the Princess of Wales' Theatre, Kennington Park-road, Kennington (Messrs. H. Greene & Sons, Limited, for Mr. R. Arthur).—Consent.

Strand.—An iron and glass shelter at the entrance to the new grill-room at the eastern end of the Princes' Restaurant, Piccadilly (Messrs. J. T. Wimperis & Arber for the Princes' Hall Restaurant, Limited).—Consent.

Strand.—An iron and glass shelter over the entrances in Rupert-street to Mr. Lowenfeld's theatre, adjoining the Lyric Theatre, Shaftesbury-avenue, St. James's (Mr. L. Sharp for Mr. H. Lowenfeld).—Consent.

Marylebone, East.—A projecting clock in front of No. 126, Oxford-street, St. Marylebone (Messrs. Maple & Co., Limited, for Mrs. Crossley).—Refused.

Marylebone, West.—Re-erection of the balcony at the first-floor level in front of No. 42, Montagu-square, St. Marylebone (Mr. F. W. Hunt for the Honourable Miss Powys).—Refused.

Width of Way.

Finsbury, East.†—An addition to the King's Arms tavern, No. 18, Moreland-street, City-road, St. Luke's, at less than the prescribed distance from the centre of Cross-street (Messrs. Eedle & Meyers for Mr. W. E. Eaton).—Consent.

Rotherhithe.—A Congregational church on the north side of Queen Elizabeth-street, Bermondsey, with the forecourt fence and a portion of the church at less than the prescribed distance from the centre of Horselydown-lane (Mr. J. Wills for Mr. F. F. Ashley).—Consent.

City of London.—Additions to Nos. 28 to 31, Bishopsgate-street Within, City, at less than the prescribed distance from the centre of a carriage-way leading from Bishopsgate-street Within to Crosby-square (Mr. T. H. Smith for Messrs. Lewis & Marks).—Consent.

St. Pancras, East.—A cart-house and stable, with rooms over, on the east side of Rochester-place, Kentish Town, at less than the prescribed distance from the centre of the street (Mr. J. A. Smith for Mr. F. J. Moule).—Consent.

Clapham.—A two-story cottage on the south side of Upper Orchard-street, Brixton, between Nos. 29 and 31, with both the cottage and the forecourt fence at less than the prescribed distance from the centre of the street (Mr. M. Marsland for Mr. J. T. Grant).—Refused.

Space at Rear.

Wandsworth.—A one-story addition in a yard at the rear of No. 2, Charlwood-road, Putney, without the premises being provided at the rear with such an open space as is required by Part V. of the Act (Mr. E. H. Dance for Mr. G. Wootton).—Consent.

Battersea.—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a two-story addition over a one-story plumber's shop at No. 1, Stanmer-street, Colestown-street, Battersea, with an irregular space at the rear (Mr. G. Hayter for Mr. J. Derrett).—Refused.

Deviation from Certified Plans.

Dulwich.—Certain deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed erection of five houses partly on the site of eight houses known as Grove-cottages, in a way leading out of Camberwell-grove, Camberwell (Mr. E. W. Mitchell).—Consent.

Projections, and Deviations from Certified Plans.

Kensington, South.—Certain deviations from the plans certified by the District Surveyor, under Sections 22, 43, 73 of the Act, so far as relates to the proposed erection of a block of residential flats on the site of Nos. 15 and 17, Glendower-place, Kensington (Mr. G. H. Fox for the Kensington Freehold Land Trust, Limited).—Refused.

Width of Way and Lines of Frontage.

Peckham.—One-story relief station at the rear of No. 87, Nunhead-lane, Peckham, to abut upon Albert-road and Scylla-road (Mr. A. E. Mullins for the Guardians of St. Giles, Camberwell).—Consent.

Brixton.†—A one-story addition on the forecourt

of a workshop next No. 1, Station-road, Brixton (Mr. F. Harmer).—Refused.

Width of Way and Projection.

City of London.—An iron landing at the fourth floor level in front of No. 26, Paper-street, City, to overhang the public way (Mr. P. B. Tubbs for Messrs. Tubbs & Hiscocks).—Consent.

Lines of Frontage and Construction of Buildings, &c.

Poplar.—An overhead wood-transporter, to be constructed of steel and wood, across East Ferry-road, Poplar, near its junction with Glengall-road (the Millwall Dock Company).—Consent.

Hackney, North.—An iron and glass roof in front of a coach-house at No. 29A, Woodberry-grove, Green-lanes, Stoke Newington (Mr. R. Midworth for Mr. E. Barnett).—Consent.

Wandsworth.—That Messrs. R. Reid & Co. be informed that the Council is not prepared to accede to their request for permission to retain a wooden coal-order office on the north-west side of Mitcham-road, Tooting, at its junction with Longley-road.—Agreed.

Width of Way and Construction of Buildings, &c.

Deptford.—A temporary wood and iron office-building at the Kent Waterworks Company's premises, to abut upon Mill-lane, Deptford (Mr. W. Morris for the Kent Waterworks Company).—Refused.

Norwood.—A temporary wood and iron school-room and offices on the south side of Horsford-road, at the rear of Corpus Christi Church, Brixton Hill, to adjoin the clergy-house (Messrs. Humphreys, Limited, for the Corpus Christi School Committee).—Refused.

Space at Rear and Construction of Lift Shaft.

St. George, Hanover-square.—A lift-shaft for an electric elevator on a portion of the open space at the rear of No. 8, Stratton-street, Piccadilly (Messrs. Meynell & Pemberton for the Hon. R. J. G. Dicconson).—Consent.

Width of Way, Lines of Frontage, and Space at Rear.

Chelsea.—A block of residential flats on the south-west side of Park-walk, Chelsea, at the corner of Chapel-street (Mr. C. W. Stephens for the Metropolitan Industrial Dwellings Company).—Consent.

Greenwich.—The rebuilding of No. 220, Trafalgar-road, East Greenwich, to abut also upon Colomb-street (Mr. R. Whaley for Mr. W. C. Rose).—Consent.

Formation of Streets.

Hackney, Central.—That an order be issued to Mr. E. O. Sachs, sanctioning the widening and adaptation for carriage traffic of a portion of Tyssen-passage, Dalston-lane, Hackney (for The Shannon, Limited). That the name Tyssen-passage be approved for the new street.—Agreed.

Lewisham.—A further deviation from the plan and particulars sanctioned by the Council on January 25, 1898, as modified by the plan sanctioned on October 4, 1898, for the formation or laying-out of a new street named Undercliffe-road on the Hollyfields Park Estate, so far as relates to a proposed alteration in the southern end of that road (Mr. W. H. Collier).—Consent.

Woolwich.—That an order be issued to Messrs. Church, Quick, and Whincop sanctioning the formation or laying-out of a new street for carriage traffic to lead from Eglington-road to Plum-lane, Plumstead (for Mr. T. Nash, Mr. R. J. Dallin, and Miss E. M. Dallin). That the name Dallin-road be approved for the new street.—Agreed.

Lewisham.—That an order be issued to Mr. J. W. Webb, refusing to sanction the formation or laying out for carriage traffic of new streets on the Crofton Park Estate, Brockley.—Agreed.

Hampstead.†—Fences across the ends of a new street to be named Glenilla-street, Hampstead (Mr. C. J. Bentley).—Refused.

Height of Building.

Islington, West.—That the application of Mr. F. Matcham for an extension of the periods within which the erection of a theatre building on the south side of Holloway-road, Islington, to exceed in height the width of a new street to lead from Holloway-road to Warlters-road, was required to be commenced and completed, be granted.—Agreed.

The recommendations marked † are contrary to the views of the Local Authorities.

SANATORIUM ON DEESIDE, NEAR ABERDEEN.—The new Scots Nordrach Sanatorium (for tuberculosis) at Nordrach-on-Dee, Banchory, has now been completed. There are forty bedrooms, and the cost per bed is upwards of 600*l.* Mr. George Coutts, Aberdeen, was architect, and the contractors were as follows:—Mason work, Edgar Gauld; carpenter, D. MacAndrew & Co.; plumbing, sanitary arrangements, and electric lighting, Jno. F. Anderson; painting, Jas. Garvie & Sons; plaster work and tiling, Jas. Scott & Son; engineer work, M'Kinnon & Co. (all of Aberdeen); and Mr. James Smith, Aberdeen, was consulting engineer. The buildings are in Hill of Fare granite.

Correspondence.

To the Editor of THE BUILDER.

THE ANALYSIS OF MORTAR.

SIR,—In an article on the above, published in the *Builder* of December 22, 1900, reference was made to my method of determining soluble silica in the analysis of mortar, in the following words:—"Mr. Hughes and other workers appear to have overlooked the fact that silicate of alumina, the main constituent of clay, is more or less soluble in hot caustic soda solution, and that therefore before regarding the whole of the silicious matter found by Mr. Hughes's test as soluble silica, the soda filtrate must be examined for alumina."

This suggestion is quite in order, and should be attended to in the analysis of inferior or jerry mortar of the present day, but in reference to the mortar used in the construction of our old castles and abbeys the precaution above suggested is quite unnecessary, for the simple reason that clay or mud was not employed, but only sand and slaked lime. Any alumina present in the lime would naturally be dissolved out in the original exhaustion of the mortar with hot hydrochloric acid and the subsequent evaporation to complete dryness in a water bath.

For greater satisfaction, however, the specimen of mortar from the old Roman ruins at Silchester, reported on in the *Builder* of December 1, has been re-examined, but no trace of alumina could be detected in the soda filtrate, so that the original figures, 12·10 per cent. may be taken correctly to represent the amount of soluble silica present in the Silchester mortar.

Passing on to the general question of mortar analysis, there can be no doubt that an efficient method of determining the actual amount of active lime present in a specimen of recently-put mortar is much required. The actual figures for the total amount of lime present cannot be relied upon as a safe indication of the quality of such mortar.

This was pointed out by the writer on the occasion of the reading of the paper of Messrs. Dibdin and Grimwood before the Society of Public Analysts, June 3, 1896, and the mortar from Rochester Castle (of which only the keep remains), containing as much as 28·67 per cent. of lime, was quoted as an illustration of an inferior mortar; while that from Tintern Abbey, containing only 18·84 of lime, was quoted as an illustration of particularly good mortar, which was practically proved by the fact that the four gable-ends of this beautiful ruin still retain their original upright form intact, notwithstanding their comparatively light structure.

Further, the employment of old bricks, which, according to Mr. Dibdin, may contain as much as 7·77 per cent. of lime in themselves, naturally introduces a certain amount of non-effective lime, though the proportion of such lime would usually be indicated by its association with carbonic acid.

Certainly, if analyses of mortar are resorted to as one means of determining the quality, they should be made as full and complete as possible.

The introduction of general terms such as "earthy matter" should be strongly objected to, inasmuch as such general expressions do not, and cannot, convey to magistrates any definite information whether a mortar has been compounded of well-burned lime and sharp sand in suitable proportions, or whether it has been made from badly-prepared lime and unsuitable substitutes for sand.

JOHN HUGHES, F.I.C.,
District Agricultural Analyst for Herefordshire.

SOANE MEDALLION COMPETITION.

SIR,—I wish to point out that in your able criticism of my drawings for the Soane Medallion you overlooked the fact that the library is top-lighted in the centre bay, as shown in Section C D.

MATHEW DAWSON.

*** We see Mr. Dawson is right; the section was hung close to the floor and out of the way of the other drawings, so that it escaped our notice. We may observe, however, that it is well, in the case of a dome-lighted compartment, to show the plan of the light in dotted lines, so as to call attention to its existence.—ED.

COOMBER *v* SOMERSET.

SIR,—May we draw your attention to your report of the case of Coomber *v.* Somerset, which appears in your issue of the 19th instant?

The clause in the lease is wrongly quoted. The tenant did not undertake to pay "all rates, taxes, assessments, charges, and outgoings," the word "impositions" being substituted for the words, "charges and outgoings," and it was upon the word "impositions" that the action was based. Had the words, "charges and outgoings," or either of them, been in the lease there could have been no defence. In Rawlins *v.* Briggs, and also in Tidswell *v.* Whitworth, it had been decided that the words, "taxes, rates, assessments, and impositions," did not enable the landlord to recover from the tenant, hence the judge's decision. We mention this because possibly some one might be misled by the report as it now stands, which is our excuse for noticing it.

INDERMAUR CLARK & PARKER,
Solicitors for the Defendant.

GENERAL BUILDING NEWS.

CONGREGATIONAL CHURCH, EAST HAM.—A Congregational church, which has been erected in Wakefield-street, East Ham, was opened on the 10th inst. The church will seat between 700 and 800 persons, and has attached class-rooms for Sunday schools, &c. The cost, including site and partial furnishing, has been 4,800*l.* The architects were Messrs. Mould & Parritt, and Messrs. Battley, Son, & Holness were the contractors.

WESLEYAN CHURCH, THE PLECK, WALSALL.—A new Wesleyan church has just been erected at the junction of Wednesbury and Darlaston-roads, from the plans of Mr. C. W. D. Joynson, of Wednesbury, by Mr. W. T. Lees. The pulpit and stalls have been executed by Messrs. Jones & Willis, of Birmingham, and the organ is at present being built by Messrs. Nicholson & Lord, and the electrical fittings by Mr. P. U. Fellows. The electric light fittings were designed and manufactured by Mr. Walter J. Chesterton. The fittings in the nave and transepts are of wrought iron and polished copper, and those of the choir and chancel are polished brass, with copper leaves and flowers. The stained glass, with which the church is lighted, is the work of Mr. B. Jones, of Walsall. The church is cruciform, with a nave of 42 ft. span with transepts of 22 ft. span, and a gallery at the western end. At the eastern end of the church are the chancel, with seats for the choir, communion table at the rear of the chancel, with apsidal end, organ chamber, minister's vestry, with lavatory, &c., and choir vestry. Seating accommodation is provided for about 710 worshippers. At the north-west corner of the building is a square tower, in which is formed a staircase leading to the gallery, and at the south-west corner there is a staircase, likewise leading to the gallery. Provision is made for ventilating and lighting the building, and a hot-water apparatus on the low pressure system is also provided for heating purposes. The style is Gothic, and the tracery, windows, and dressings are executed in warm buff terra-cotta. The boundaries next the roads are fenced with dwarf walls and malleable iron palisades and gates. The pews and other fittings are executed in light oak. The total cost of the building has been about 7,000*l*, including the organ.

BOARD SCHOOLS, HANWELL.—New Board schools are to be erected at Hanwell from a design by Mr. W. Pywell, of Hanwell. The scheme provides for a total accommodation of 1,230 children—780 boys and girls in the mixed department, and 450 in the infants' school.

LABOURERS' COTTAGES, MIDLETON, CO. CORK.—A Local Government Board inquiry, conducted by Mr. Richard O'Brien Smyth, has just been held at Midleton into an application by the Rural Council for sanction to a loan of 32,640*l.* for the erection of 191 cottages under the Labourers' Act in the five dispensary districts of the Union—Aghada, Castlemartyr, Cloyne, Midleton, and Walshtownmore. Evidence was given by Mr. Richard Evans, C.E.

HOTEL, OXFORD.—A new hotel and restaurant has been built on the site of the old White Hart in Cornmarket-street, Oxford. Mr. Stephen Salter was the architect, and Messrs. Kingerlee & Son were the builders. The building will be lit by electricity, the installation being by Messrs. Hill, Upton, & Co.

ALMSHOUSES, TOTLEY BOTTOM, SHEFFIELD.—At Totley Bottom, on the 17th inst., the new almshouses were formally opened. The houses are three in number, and are to be occupied by old people selected by the trustees. The houses stand on the right-hand side of the road, about a mile from Dore and Totley Station, and are built of Dunford Bridge rocky stone, with Stoke Hall ashlar dressings, the roofs being covered with Broseley red tiles. They are in the English Domestic style, with bay windows in front. There is only one floor, and each house consists of two rooms and a combined pantry and scullery. To the south and east the houses are bordered by ornamental shrubberies, and behind there is a large stretch of garden. The area of the land used is about 2,600 square yards, freehold. Messrs. Hall & Fenton, of Sheffield, were the architects, and the contractor was Mr. Edmund Fox, of Bradway.

SKIPTON WORKHOUSE INFIRMARY.—The new infirmary at the Skipton Union Workhouse was opened recently. The building is of stone with inside brick lining. There are two stories, the average height of the rooms being 12 ft. clear. A verandah faces the south and immediately in front of the administrative portion. There are four wards, two each on the ground and first floors, the dimensions being 36 ft. by 24 ft. each. Each ward will accommodate twelve beds, the total provision being for forty-eight beds. The administrative block is between the four sick wards, with which it is connected by 6-ft. corridors. There are the usual nurses' quarters, bathrooms and dayrooms, and general conveniences. The floors are of maple boards on cement concrete, supported on steel beams and joists. The plastering has been done with adamant plaster; the baths, lavatories, and

sanitary arrangements are by Messrs. Doulton & Co., Limited, Lambeth; the heating is effected by means of hot-water apparatus through radiators and coils of pipes. There are two boilers—one for heating purposes and the other for the supplying of baths, sinks, &c. Shorland's grates have been fixed, while extract ventilators on the roof are connected to each room by means of air flues and tubing. The amount of the accepted estimates was 3,850*l.*, but certain alterations and additions will bring the total cost to something like 4,500*l.* The contractors were:—Masonry, Mr. B. Kirk, Skipton; joiner's work, Mr. James Greenwood, Crosshills; iron and steel work, Mr. W. Fawcett, Skipton; plumbing, Messrs. H. Walker & Son, Bingley; plastering, Mr. T. Bailey, Skipton; slating, Messrs. R. Thornton & Sons, Skipton; hot-water fitting, Mr. T. Mears, Bradford; ventilating and stoves, Messrs. E. H. Shorland & Bro., Manchester. The clerk of works has been Mr. Sam Whitham, Crosshills. The architect was Mr. James Hartley, of Skipton.

CHILDREN'S HOME, MOORTOWN, NEAR LEEDS.—The foundation stone of a children's home in Street-lane, Moortown, was laid on the 18th inst. Mr. Percy Robinson is the architect. Mr. J. T. Wright is the contractor.

SANITARY AND ENGINEERING NEWS.

SOUTH DARLEY WATER SUPPLY.—The South Darley Urban District Council have approved and accepted a scheme of water supply prepared by Mr. Harry W. Taylor, of Newcastle-on-Tyne and Birmingham. The supply will be from the springs issuing from the millstone grit measures, from whence it will gravitate to the whole of the district. The estimated cost is about 3,500*l.* Application to the Local Government Board for borrowing powers will be made at once.

FOREIGN.

FRANCE.—MM. Pascal, Loviot, Normand, Vaudremer, Courtois-Suffit, Scellier de Gisors, Adrien Chancel, Boeswilwald, Formigé, and Raulin, who had resigned membership of the Committee of the Société des Artistes Français (Old Salon) have all been re-elected by a large majority.——At the Ecole des Beaux-Arts the jury on the Labarre competition have awarded the prize to M. Coutan, pupil of M. Pascal. The subject was "A People's Palace."——The collection of church plate left by Baron Adolphe de Rothschild is to be arranged in a special room devoted to it in the Louvre, and to be called the Rothschild Gallery.——The monument to Victor Hugo by M. Barrias is to be inaugurated on the Place Victor Hugo next month.——M. Alfred Newham, architect, of Lille, has been elected President of the Société Regionale of the North of France.—— There is talk of restoring and setting in order the Château of Compiègne as a summer residence for the President of the Republic.——At Marseilles a large building is to be erected for the offices and stores of the Colonial Service.——The Chamber of Deputies has voted a sum of 100,000 francs to repair the ancient and fine Hôtel de Soubise, in which the national archives are kept.——The Municipal Council of Paris has before it a scheme, presented by four eminent painters, MM. Gérôme, Detaille, Robert-Fleury, and François Flameng, to erect, on the site of the former Cirque de Champs Elysées, a building for the periodical organisation of private exhibitions and concerts. If the scheme is adopted, the design of the building will be entrusted to M. Girault, the architect of the Petit Palais. The occasion would be taken to remove from the Champs Elysées the Théâtre Marigny and the Palais de Glace, which occupy a great deal of space with no corresponding advantage.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Millar's Karri and Jarrah Forests, Limited, have recently opened a depot and saw-mills at Purfleet Wharf for landing and storage of building materials of all kinds.

THE SANITARY INSTITUTE.—The thirty-first course of lectures and demonstrations for sanitary officers is announced to be given at the Parkes' Museum during February, March, and April, commencing February 1. It includes four lectures on elementary physics and chemistry, and twenty-one on public health law, duties of a sanitary inspector, municipal hygiene, building construction in its sanitary relations, &c.

TEES-SIDE MASTER BUILDERS.—The annual meeting of the Tees-side and District Master Builders' Association was held at the Masonic Hall, Stockton, on the 15th inst. Mr. T. Wilkinson, of Middlesbrough, was elected president, and Councillor T. E. Atterby (Stockton), Councillor Proud (West Hartlepool), and Mr. W. Bastiman (Middlesbrough) were appointed vice-presidents. Mr. W. C. Creason (Stockton) was re-elected secretary and treasurer. Mr. W. C. Creason, in his annual report, said, as a result of an advance in wages granted to the joiners in 1899 by the Stockton Association, several conferences were held with the view of arranging one set of rules to apply to the whole district, the wages being 9d. per hour all round. This was successfully accomplished, and was regarded as one of the best pieces of work done by the Association, inasmuch as when any demands were made by the joiners they must be made to all towns alike and at one time, and must be dealt with by the Tees-side Executive Committee. The members' attention was also directed to the fact that practically the whole of the employees in the building trade in the district were combined in one federation. In May last the employees asked that non-union men should not be employed. The employers offered to assent to that if the men would agree to work only with associated masters. The men would not agree to that, and the negotiations fell through. The past few months had shown that the federation was not a federation in name only. The bricklayers in Newcastle having demanded an increase of wages, and that having been refused, they went out on strike. The Newcastle builders bore the burden for some time before appealing to the federation for assistance. Ultimately they appealed to the Northern Counties Federation, which ordered a lock-out of all bricklayers, and that had been carried out. The dispute had also been before the Yorkshire, Lancashire, and Cheshire Federation, and they had decided, failing a settlement, to lock out their men on February 2. It must, therefore, be generally conceded that the federation was endeavouring to justify its existence, and possibly now that it had shown its teeth the workmen would see that the employers meant to be masters of their own business. As a result of the present lock-out the Executive Committee had had under consideration the advisability of endeavouring to induce the foremen to leave the men's union, and to substitute something equally beneficial. The foremen were in a delicate position, and it was hoped that a scheme would shortly be formulated for dealing with the matter. In conclusion, the report stated that it was perhaps too much to expect that the great prosperity in trade would continue very much longer, but it was generally felt that if the workmen could be brought to see that their interests were identical with those of the masters, and would give a fair day's work for a fair day's wage, there was every likelihood that both employers and workmen would have good prospects for some little time to come. The report was adopted. Afterwards a meeting was held for all persons interested in the building trade, at which various subjects were considered. The annual dinner of the Association was held in the evening at the Masonic Hall, Mr. T. Wilkinson, Middlesbrough, presiding. Mr. A. Harrison proposed the toast of "The Tees-side and District Master Builders' Association." Mr. T. Wilkinson, the President, said they were engaged in a struggle the magnitude and extent of which they could not at present comprehend. They had hoped that a settlement might take place, and that reason and cool judgment would take the place of strife. They offered arbitration, and they were prepared to stand by that. So far as the Tees-side district was concerned, he believed all the members of the federation had stood staunchly together. Mr. T. Dickinson also responded. Mr. W. G. Roberts (Middlesbrough) gave the toast of "The Northern Counties Federation of Building Trade Employers." Alderman Rankin, of Sunderland (President of the Association), in responding, said the members of the federation were determined that builders should have something like justice and right. With regard to the present lock-out, they were exceedingly sorry that anything of the kind should take place. What could they do under the circumstances? The Newcastle employers were refusing to give way to an unreasonable demand of the men. The men would have followed their usual custom of attacking one town at a time, and as soon as they had conquered that they would have proceeded to another. There was no other course for the employers to adopt but to amalgamate in order to resist such tactics. Mr. W. H. White (President of the Sunderland Association), who also replied, said it was a fact that that imperfect organisation, coupled with the fact that the other side was so well organised and led by such capable leaders, had forced upon them the necessity of federating themselves. It had brought home to them the knowledge that small local organisations were utterly incapable of resisting unjust demands made by the men, and it was only by combined action in extended areas that they could cope with the men. Mr. B. Dickinson proposed the toast of "The Architects and Surveyors," and Messrs. E. Whipham and A. Newsome responded. Other toasts followed.

GLASGOW HIGH SCHOOL CONSTRUCTION CLASSES.—On Saturday afternoon, the 12th inst., the students of the High School Building Construction Classes, under Mr. D. Bennet-Dobson, visited the buildings of the Glasgow International Exhibition. The party, which numbered about seventy, were conducted through the various buildings by Mr. White, clerk of works. Commencing at the Industrial Hall, the Indian and Burmese sections were first visited. The company's attention was drawn to the delicate and intricate carving of the stalls and the difference between the art of the Indian and Burmese carvers. The exit close by gave a fine demonstration of the automatic arrangement of the revolving shutters. The main roof of the Industrial Hall has a span of 103 feet, and it is designed, as was pointed out, on the three-hinged principle, so as to counteract any evil effects caused by expansion and contraction of the metal. The feet of the trusses are supported by steel pins, fixed to bed-plates, which are securely bolted to the concrete foundations, the other pin being at the centre of the truss near the ridge. The party then visited the dome, which is 80 feet in diameter and 190 feet high. Instead of being supported by the steel piers which were originally intended to carry it, steel being so difficult to obtain at the time, timber was adopted, and the construction of the four massive L-shaped piers proved an excellent object-lesson in timber construction. The company then passed down the Grand Avenue, which is 1,000 ft. long by 75 ft. broad, and curved on plan. The roof, rising to a height of 40 ft., is formed of semicircular laminated ribs, 15 ft. centre to centre. The central portion of the ribs is in three thicknesses of timber, while the ends are in five thicknesses. The bridge across the Dumbarton-road was next examined, and, as explained by Mr. White, is on the cantilever principle. The cantilevers are supported on cast-iron columns, and the necessary back weight obtained by large concrete blocks. The Machinery Hall, which was next visited, covers a large area, and is roofed by five roofs. A central span of 108 ft. is bridged by elliptical-shaped trusses, supported at intervals of 8 ft. by double columns, and the space between these again spanned by curved lattice girders. Two roofs of timber construction flank either side. After having been shown all the points of interest in the Machinery Hall and having been conducted round the various detached buildings, the party passed a vote of thanks to the architect, Mr. James Miller, Glasgow, for his kindness in granting permission to visit the buildings, and also to Mr. White for the interesting and instructive way in which he conducted the party.

FIRE PREVENTION AT THE BUILDING TRADES EXHIBITION.—In further reference to the special "Fire-Proofing" Section at the Building Trades' Exhibition which is being organised under the auspices of the British Fire Prevention Committee, the Executive of this body, at a meeting last week, decided to invite numerous representatives of the municipal, technical, insurance, and industrial interests concerned to visit this elaborate demonstration of means and ways for reducing the modern fire risk. Among those to whom invitations are being issued are the provincial Chairmen of Works Committees, Engineers of the large Dock and Railway Companies, principals and masters of the technical colleges and polytechnics, &c. Special arrangements are being made by which the visitors will have every facility for studying the subject, and the committee will, no doubt, also entertain at their new Testing Station at Westbourne Park. A sub-committee has been appointed to take charge of matters relating to the Section, comprising Mr. F. Hammond (chairman), Mr. Max Clarke, Mr. Frederic R. Farrow, Mr. Charles E. Goad, Mr. Ellis Marsland, and Mr. Edwin O. Sachs, with Mr. H. G. Montgomery as business manager. Particulars of the general arrangements are obtainable from the committee's offices at No. 1, Waterloo-place, Pall Mall, S.W.

YORKSHIRE MASTER BUILDERS AT DINNER.—The annual dinner of the Yorkshire Federation of Building Trade Employers was held on the 17th inst., at the Queen's Hotel, Leeds. A company of between 140 and 150 assembled, and Mr. James Longden, of Sheffield, presided. After the loyal toasts had been honoured, Mr. S. Smethurst proposed "The Yorkshire Federation," observing that the great object of their organisation was not to promote industrial war. They ought to look upon strikes and lock-outs as being something in the nature of a calamity. Sometimes they might be inevitable, but his impression was that largely they were the consequence, not of any real difference so much as to misunderstanding, and he thought that in proportion as they built up a strong, solid, intelligent combination on their side, they would find that something similar existed on the other side, and by mutual discussion, and by mutually trying to understand each other, many points of difference would be removed, and what in other circumstances might have led to disastrous conflict would be met by discussion and argument. Referring to the strike of bricklayers on Tyneside, he reminded them that there was no town in England that paid more to the men, and the attempt to get an advance from 10d. to 11d. per hour, was in his opinion to be made a pivot to raise the standard wage throughout the country to 11d. He was glad that at this moment the better sense of the country had prevailed, and practically the claim at Newcastle was withdrawn. There were certain technicalities to be completed, but the principle was withdrawn, and unless something happened that they did not at this moment foresee, practically that struggle was brought to a close, and the stern measure that a week ago they should have been compelled to resort to had been averted.—The President, in reply, expressed the opinion that the workmen were beginning to find that they would have to go about their business in a more gentle manner, and be more reasonable in their demands. Of course, the employers had to find the money and the brains, and of late the workmen had wanted to tell them how that money

was to be spent, and how far they would like to put their hands down into their pockets. They wanted to try and alter that, and it could only be done by the united action of every employer in the building trade, and by their doing everything they could to assist the Federation to resist the unfair attacks that were made upon the masters in many ways. They must expect the men to give a fair day's work for a fair day's wage. If they were to maintain their position, they must be united. In that event he had no doubt they would have better times, and make their business more successful and remunerative.—Mr. G. H. Walters (Hull) and Councillor Mansfield (York) also responded. Mr. Walters, in the course of his reply, alluded to the scheme to raise a special fund for special work. He said they paid sixty millions a year in wages in the building trade, and if they only paid 3d. per 100*l.* of wages to this special fund they would have an income of 7,500*l.* This matter was to come before the National Federation, and he trusted it would have the hearty approval of every employer, and then they would have a respectable sum behind them to combat the tyranny of the men and to go in for organisation throughout Great Britain.—Mr. W. R. Thompson (Dewsbury) next gave "The Northern Counties." He pointed out that they had an instance in Tyneside where a strong association had been unable to deal with a serious labour trouble. If the Newcastle Federated Masters had been left to deal with the trouble by themselves they would probably have come off second best. They, however, brought the difficulty before the Northern Centre, who came to the conclusion that it was desirable to help them. The impending lock-out had, they hoped, been averted. Their thanks were due to the Northern Centre for the tact and ability with which they had managed the business.—Mr. R. Hislop (Newcastle) and Mr. E. Goode (Hull) responded. "The City and Trades of Leeds" was given by Councillor Carr (Sheffield), and acknowledged by Mr. W. H. Dews.—Mr. J. Biggin (Sheffield) submitted the toast of "The Architects and Surveyors," which was acknowledged by Mr. W. S. Braithwaite and Mr. G. F. Bowman.

CROHAM HURST PRESERVATION.—The Croydon County Council has decided to purchase the whole of the wooded hill to the south of Croydon known as Croham Hurst. Two years since successful negotiations resulted in the acquisition of thirty-five acres, and public attention was aroused to the fact that the most lovely portion of all, the remaining forty-five acres, was threatened with spoliation by the builders. As a result of an open-air meeting on the top of the Hurst on January 22, 1899, an influential committee of seventy members was formed to request that the whole eighty acres might be devoted to the use of the public for ever. This object has now been achieved, inasmuch as the Council has decided to offer the sum of 15,000*l.* for the remaining forty-five acres.

THE INSTITUTION OF JUNIOR ENGINEERS.—On Saturday, the 12th inst., a large party of members of this Institution visited the works of Messrs. W. T. Henley's Telegraph Works Company at North Woolwich. The various processes in connexion with the manufacture were seen in operation, and fully explained by the members of the staff. The business was founded about fifty years ago by the late Mr. W. T. Henley, and up to the time of his death, which occurred in 1882, the works were devoted almost exclusively to the construction of submarine telegraph cables and underground telegraph lines. Since then the business widened into other channels, until at the present day the cables manufactured embrace every type used for telegraph, telephone, electric light, and electric power purposes. Many of the huge reels now turned out at the company's works contain cable of a design which was unknown at the time of the founder's death. Telephone cables, which were originally made with gutta-percha insulation, are now insulated with vulcanised india-rubber, and hundreds of miles of wire, of the well-known dry-core cable with paper insulation, are produced weekly. Large quantities of india-rubber and gutta-percha are always in process of being cleaned and prepared for insulation purposes; each operation is carried on in the works, the gums being received from abroad in a crude condition. The new buildings which have been erected on the river front comprise large electrical testing-rooms, forming an important feature of the works, each order executed having to pass stringent electrical and mechanical tests. The greater part of the machinery is driven by electric power, and every new workshop opened from time to time is run by this means. The works themselves give employment to over 1,000 hands, and there is also a large staff engaged outside in connexion with the laying of cables, &c.

CAPITAL AND LABOUR.

BIRMINGHAM BUILDING TRADE DISPUTE.—The difficulty that had arisen respecting the working hours of builders' labourers in Birmingham has been amicably settled. A month ago the employers gave notice to the workmen's section that in future they would require the labourers to commence work at the same time as the workmen they were assisting—carpenters, masons, or plasterers. The men asked for a rise of a halfpenny an hour, and the matter has just been considered by the wages board. The men connected with the National Association of Gas-workers and General Labourers and the Federated Labourers pointed out that the effect of the employers' demand would be that builders' labourers, except those working for plasterers, would work half an hour less per day than at present, and they wanted this made up in higher wages. The employers replied that their only object was to alter the hours of the men assisting the plasterers. At present the labourers start half an hour later than the skilled workmen—a very inconvenient arrangement. Carpenters' and masons' assistants would in no way be affected by the proposed change. The men's representatives were satisfied with this explanation, and signed an undertaking that this class of men should start at the time required, and the notices on both sides were withdrawn.—*Birmingham Post.*

COVENTRY BUILDING TRADE.—The men engaged in the building trade in Coventry have received from the Master Builders' Association notice of a proposed reduction of wages, to come into force on April 1.

THE NORTHERN BRICKLAYERS' STRIKE.—There is every probability of the strike of bricklayers on Tyneside being settled at an early date. It will be recalled that in the spring of last year the men applied for an advance of wages from 10d. to 11d. per hour, but that it was refused. The employers, however, offered to refer the matter to arbitration. This was refused by the operatives, and the strike commenced in May, and has continued till now. Practically the whole of the men found work elsewhere, and their removal caused a cessation of work in the federated shops of Newcastle and district. The votes cast in the ballot just taken of the Northern bricklayers with reference to the two propositions of the employers for the termination of the lock-out, viz., arbitration, or a guarantee of the present wages for two years, were counted on Saturday last week at Newcastle. The result was despatched to the London offices of the Bricklayers' Union without being communicated to the branches. It is believed that a majority will be shown for arbitration, though as a protest against the action of the Executive Committee many papers were returned blank.

LEGAL.

IMPORTANT POINT UNDER THE LONDON BUILDING ACT, 1894.

THE case of Moses *v.* Marsland came before a Divisional Court of Queen's Bench, composed of Justices Bruce and Phillimore, on the 17th inst., on an appeal, by way of special case stated, from the decision of a Metropolitan police magistrate ordering the appellant to comply with a notice served on him by the District Surveyor for Camberwell (the respondent) under the provisions of the London Building Act, 1894, requiring him to do certain things, or certain alterations, for the Managers of the Metropolitan Asylums District at a building in Elm-grove, Peckham.

The facts were these:—By an order of the Local Government Board, dated April 2, 1897, the care of children of weak intellect or physical infirmity incapable of being trained in association with children in ordinary schools was placed in the hands of the Managers of the Metropolitan Asylums District, who, to carry out the order, prepared a scheme for purchasing various dwelling-houses in different parts of London adjacent to schools specially provided and staffed by the London School Board for the education of these children. Under the scheme the children had to live, sleep, and board in such houses under the care of a matron, in numbers generally not exceeding fourteen in any one house, and to attend such special Board schools each day for the purpose of their education. The houses were intended as permanent homes for the children. The house in question, No. 16, Elm-grove, had been an ordinary detached dwelling-house of two floors, with one room and a basement below, and this had been purchased by the Managers under the scheme, who instructed the appellant under the supervision of the Board's Architect to alter or convert the dwelling-house to make it suitable for the accommodation of twelve to fourteen children and a matron, cook, and housemaid. The total cubical capacity of the dwelling-house was under 50,000 cubic feet, with sleeping accommodation as above. The appellant, before he commenced the work, served a notice on the respondent giving him notice that he was about to make alterations in the above dwelling-house and convert it into a public building, and thereupon the respondent served notices on the appellant making certain requirements with regard to the staircase and the height of the rooms, &c. The only question before the magistrate was whether the building in the above circumstances was a "public building" within the meaning of the London Building Act, 1894, Sections 5 (27), 68, and 79. The magistrate held that the building was, in the hands of the Managers of the Metropolitan Asylums District, used or constructed or adapted to be used for a public purpose, and made the order asked for by the respondent.

Mr. Macmorran, Q.C. (Mr. Herbert Smith with him), for the appellant, submitted that the building in question did not come within the definition in Section 5 (27) of the Act. The test was whether the building was intended to be used for a public purpose similar to those enumerated in the section, and the section did not apply to a mere dwelling-house, though placed under the control of a public body.

Mr. R. C. Glen, for the respondent, contended that the magistrate's order was right, and that the building was a "hospital" within the meaning of the section.

Mr. Justice Bruce, in giving judgment, held that the building in question was not a public building within the meaning of the section of the Act of 1894. He did not think that the building could be considered as a hospital in that sense, nor was the building within the section on the ground that it was a building used for "any other public purpose." Again, the building did not come within the term "home," because it had not a cubical capacity of 250,000 cubic feet or sleeping accommodation for 100 persons. His Lordship therefore thought that the magistrate came to a wrong conclusion, and that the appeal must be allowed.

Mr. Justice Phillimore concurred, and the appeal was accordingly allowed with costs.

USE OF GUY-ROPE IN HOISTING: WHEN DOES ITS ABSENCE CONSTITUTE NEGLIGENCE?

AT Brompton County Court on Monday, before Judge Stonor and a jury, Alfred Crow, a builder's labourer, 13, Riley-street, Chelsea, sought to recover damages from his former employer, Mr. Joseph Pratt, contractor, Lots-road, Chelsea, the claim being in respect of personal injuries said to have resulted from negligence on the part of the defendant. The action had been remitted from the High Courts, and the proceedings were taken under Common Law.

Mr. J. W. Moyses, counsel, appeared for the plaintiff, and Mr. Arthur Powell, counsel, defended.

Counsel for the plaintiff explained that on July 2 last his client was engaged by the defendant to assist in unloading a barge of deals at Chelsea Wharf, Lots-road, and to place them in railway trucks which were drawn up by the side of the barge. For the purpose of hoisting the timber a steam-crane was used. A number of deals were attached to the end of the wire rope by which they were drawn up from the barge, and then they were swung round until over the railway truck, into which they were guided by the plaintiff and another man. Some deals had just been hoisted, and, as the plaintiff was waiting to receive them in the truck, they swung round, striking the unfortunate fellow and causing him to fall to the ground. His injuries appeared to be of practically a permanent character. It was now maintained that the defendant was guilty of negligence in not providing a guide-rope, technically termed a guy-rope, by which to steady the timber and prevent it from swinging round.

Mr. William Robert Pether, consulting engineer, Basinghall-street, E.C., stated that he had had a considerable amount of experience in the work of hoisting timber. He contended that a wire rope would be likely to cause long lengths of timber to swing round more than if an ordinary chain were used on the crane. He also maintained that when hoisting deals or other long pieces of timber, a guy-rope should be used to prevent the timber from unduly swinging round; otherwise he considered that the work would be dangerous.

Cross-examined: It was the usual practice in the trade, when hoisting timber by a crane, to use a guy-rope. He was not aware that any different method was adopted at Folkestone, Newhaven, or Harwich.

Mr. Christopher Richard Griffiths, architect and surveyor, said that he also had had experience in the work of hoisting timber by means of a crane, such as the one in question. He agreed that it was usual to use a guy-rope for the work.

Cross-examined: He did not think that a guy-rope would be likely to get in the way and to interfere with the work; on the contrary, he considered a guy-rope to be quite necessary for the work.

The plaintiff then gave evidence. He bore out his counsel's opening statement, and added that at the time of the accident he was receiving wages at the rate of 7s. 6d. a day. Owing to the accident, he had been unable to do any hard work since.

Mr. Felix Charles Kempster, M.R.C.S., &c., described the man's injuries, which were of a very serious nature. For the defence, Mr. Albert Benthall, M.R.C.S., &c., and Mr. J. Edlin, F.R.C.S., &c., gave evidence implying that plaintiff's injuries had been exaggerated.

The defendant was then called. He said that he had had some twenty-five years' experience in using cranes for hoisting timber, and he maintained that for such work it was not usual to provide a guy-rope. Sometimes a guy-rope was used on a hand crane, but only for the purpose of helping to draw the timber round to any place required. He had never seen a guy-rope used on a steam crane like the one in question.

Cross-examined: On another crane at the same wharf they used a guy-rope but this was for moving the jib round, and not for steadying the timber.

Re-examined: Cranes were now generally fitted

with wire rope instead of a chain for drawing the loads up, the wire taking the place of the chain because it was better for the purpose.

Mr. Joseph Henry Pratt, son of the defendant, said that he had never seen a guy-rope used in connexion with a steam crane.

The Judge: Do these wire ropes make the timber turn round more than the chains?—The Witness: No, sir?

Mr. William Thomas Andrews, engineer to the Regent's Canal Company, stated that he had never seen a guy rope used when hoisting deals by a crane, although one was sometimes provided when pulling up large baulks of timber, 30 ft. or 35 ft. long. On wooden cranes, particularly in Quebec, guy-ropes were used to pull the jib round, so as to get the timber at the spot required.

Henry Frye, the driver of the crane in question, said that he had been accustomed to working steam cranes for the past thirty years and had never seen a guy-rope used in connexion with them, except for large baulks of timber.

Cross-examined: He believed that the plaintiff, at the time of the accident, was not in his proper place.

George Butcher, another man working on the job, gave similar evidence.

Mr. Pether and Mr. Griffiths, re-called, both said that when the witnesses for the defence spoke of a rope used for pulling the "jib" of the crane round, they appeared to be referring, not to a guy-rope, but to a "trail-rope."

The jury found (1) that a guy-rope was frequently and generally used for steadying timber when it was being unloaded; (2) that the absence of a guy-rope in connexion with a steam crane, under circumstances like those in question, was dangerous; (3) that the absence of a guy-rope in the present instance caused the accident. This was a verdict for the plaintiff, in whose favour the jury assessed the damage at 93*l.* 10s., being 43*l.* 10s. for wages and 50*l.* for pain and suffering.

His Honour gave judgment accordingly, and allowed costs.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

19,070.—A CIRCULAR SAW GUARD: *S. Drew.*—On to a bracket fixed behind the saw-bench is clamped a plate made of steel or other metal which (its bevelled-off edge excepted) is thicker than the saw. The saw's front is protected with an extension piece that is bolted on to the plate, and has a roller that will run upon the wood.

19,089.—AN APPLIANCE FOR VENTILATION: *H. W. Roberts.*—The ventilator is adapted for use with a partly-opened window, and admits air from without through an opening whose areas are gradually enlarged. Side brackets support a blind of some textile material, stained glass, &c., and at the bottom is a curved plate fitted with a reflecting lip, a screen being carried by slats mounted upon hooks.

19,116.—GLASS FOR DECORATIVE PURPOSES: *Soc. Anon. Belge pour La Fabrication des Emaux Artistiques.*—For giving a roughened back to glass slabs, mirrors, &c., and rendering them specially applicable for wall decorations, plinths, panels, wainscoting, and so on. Fragments of glass and white sand are put into the moulds before the material is poured in, so that they shall partly melt and adhere to the slabs or plates when the moulds are heated in a furnace to a high temperature; when the moulds have become cool the slabs or plates will have acquired a roughened back surface.

19,134.—A DOOR HINGE: *C. Porter and F. D. Bishop.*—The inventor's object is to provide means for folding an opened door behind the jamb; at the end of a tongue, which projects from the door-plate, is a pin turned downwards into a socket in an angle-plate, which is secured at the corner of the jamb; a slot in the angle-plate gives room for the tongue's movement, and the pin can be raised out of its socket by means of another recess in the plate; in a variant form of the device the relative positions of the socket and pin are interchanged.

19,142.—AN APPLIANCE FOR USE WITH DRAWING BOARDS: *H. W. Roberts.*—With this contrivance a drawing-board can be turned or set at an angle about the table. To its underside is screwed a square piece on to which is secured a cross-piece which joins the two side pieces that constitute a rest for the board, the square piece being arranged so that it may turn freely around the screw which joins it to the cross-piece. For protecting the table, grooves are cut in the cross-piece and inlaid with india-rubber.

19,168.—CONTINUOUS KILNS: *H. R. Vaughan.*—The kilns for drying and burning bricks, terra-cotta, pipes, other clay goods, and cements and limes are after the kind specified in No. 20,540 of 1895. In order to more efficiently distribute amongst the freshly-charged chambers the hot gases after their withdrawal from the fired chambers and their circulation amongst the "green" goods, their free delivery over the floor surfaces is effected by means of branch flues leading from the middle hot-air flue to beneath the perforated floors of the chambers. Over the chambers and communicating with them are disposed other branch flues whose connexions with the central main flue and the hot-air flue are regulated by dampers. The working of the dampers will draw steam from the "green" goods—as they are being dried—through the branch flues and the main flue, which is joined to the chimney flue and the chimney, and will direct the hot gases from the burned goods through some of the branch flues into the hot-air flue, and thence into the chambers in which "green" goods are stored. The burning capacity of the kiln can be increased with portable fire-grates or furnaces inserted into openings made in its side walls. The goods may be dried before they have been reached by the sulphur-laden fumes issuing from the chambers that are being fired. The middle main flues and walls are built along the kiln's entire length, and provision is made for the flow of hot gases through passages in the end chambers in the shape of a connexion between the hot-air flue and the cross flues.

19,177.—MILLS FOR THE MANUFACTURE OF CEMENT: *H. Bing.*—For grinding and crushing clinker and other materials used in the manufacture of cement are devised reciprocating plates having corresponding ridges or corrugations (set transversely in respect of the direction of their motion) fashioned upon their working faces. The upper plate is attached to a frame that is moved with a rod and eccentrics or cranks; the lower plate is secured to a bed-plate, the frame being forced downwards with springs that press against a girder which forked links retain against the bed-plate. The machine may also be constructed with its reciprocating frame mounted upon rollers, and a hydraulic cylinder acting through a roller beneath which the frame travels backwards and forwards may be used for forcing the frame downwards. In the case of an extended plant for pulverising cement-clinker and for the treatment at successive stages of the material a series of the mills described can be employed.

19,197.—TREATMENT OF SEWAGE, FOUL WATERS, &c.: *J. Brightmore, T. Swann, and F. S. Goodwin.*—The plant comprises an anaërobical tank and two aërobical tanks, whereof the former is fitted with a set of pierced trays which carry the filtering media, and has an air-tight cover with an outlet through which gas and air may escape; filtering materials, such as coal and limestone, or coke, are laid in alternate courses upon pierced partitions arranged inside the two other tanks, from which pipes pass to the former tank; whilst one aërobical tank of a set is at work the other similar tank remains at rest, and during the intervals of rest the aëration of the filtering substances can be effected by means of valves at the bases of the aërobical tanks.

19,287.—MANUFACTURE OF BRICKS: *J. P. Fiske.*—The inventor furnishes means of carrying bricks in the course of their making, so as to avoid their being frequently handled, together with an improvement in kilns. After the moulded bricks have been stacked upon trucks (which are run on to other trucks and thence into a drying chamber), they are transported to slotted stands, from which a travelling crane, mounted upon rails, carries the larger stacks (made up of smaller stacks) to the burning-kilns; injury of the soft "green" bricks is obviated by piling the small stacks upon a bottom layer of burned bricks placed on the stand, whose slots are equal in size to the slots in the kiln's floor which take the cross beams which carry the beams to which the lifting-chains of the crane are hooked; the kilns forming a series below the ground level have pits or flues in their floors which take the cross-beams, the cross-beams being drawn away when the bricks have been laid down, and the kiln chambers are closed with loose covers of hollow tiles joined with tie-rods to one another; the withdrawal of the beams is facilitated by means of openings in the partition-walls between the chambers, which are ranged in alignment with apertures through which the gases pass from chamber to chamber, and the openings are closed, under normal conditions, with stop-blocks made of terra-cotta.

19,205.—COUNTER-SEATS FOR USE IN SHOPS: *C. P. Evans & F. H. Hawksworth.*—To the partition of a counter is fixed with lugs a tube, within which is a spindle that carries a block joined with a rail to another block having projections on its sides. The two parts of the seat, which can be folded, are hinged on to rods which join the two blocks, so that it may swing upon the spindle sideways, and be retained by the fall of the wedged portion of the first-named block into one of two notches which are cut in the tube's top. When the two portions of the seat are horizontal they rest upon the projections of the latter block and abut against the other block.

19,318.—SCREW UNIONS FOR JOINTING OF PIPES: *F. Chisholm.*—A screwed coupling for screwed steam, water, gas, or other pipes of metal consists of a sleeve or socket piece to be screwed on to the pipes, which is fashioned with a bevelled socket that takes the packing, which is pressed together with a bevelled and screwed gland. The gland may be turned square, as it is described in No. 23,992 of 1893, or its plain part may be formed separately from its nut portion. In the former case a loose bevelled washer should be placed between the packing and the end of the gland. The invention is stated to be applicable to taps, cocks, valves, and similar fittings.

19,328.—FLOORING CRAMPS: *F. Woodhead.*—The ram is guided by a saddle that rests upon the joist, and has legs to which are pivotted two dogs, to the ram is affixed a crossbar on to which a forked operating-lever is pivotted, and the lever is also pivotted to links that join the arms of the dogs. When the lever is pulled about its pivot upon the crossbar it presses the dogs against the joist, then—as it turns about its pivot upon the links—it impels the ram so as to clamp the floorboard. The cramp is retained in its place by means of a hinged stay as the board is being nailed down.

19,358.—BLOCKS OR SHEETS FOR FLOORS, PAVEMENTS, &c.: *C. J. R. Le Mesurier.*—A pavement or flooring which is claimed to be noiseless and elastic is made of a compound of moss-litter and some bituminous substance—such as tar, asphalt, creosote residues, or india-rubber, or some other resinous material, to which may he added, at option, brickdust, sand, or some such substance. The compound is made under pressure.

19,361.—A FLUID FOR PRIMING, PAINTING, AND VARNISHING PURPOSES: *A. E. Lefebvre.*—An admixture which is intended for use also as an anti-corrosive and for the prevention of rust, is made of liquid wood, refined resin, tar, yellow colophony, and carbon bisulphide.

19,458.—COFFER-DAMS: *A. D. Garretson and W. W. Browne.*—In the case of crib-work coffer-dams for wharves, docks, breakwaters, and similar structures, the inventors join together vertical metal plates with angular rails that are riveted on to them, forming tongue-and-groove joints with one another; to the rails are riveted cross-bars which join together opposite plates, and diagonal braces strengthen the end plates; a filling of stone, concrete, earth, &c., is used, and a plank floor is laid over the plates and bars or stringers.

19,587.—SIPHONICAL DISCHARGE: *T. G. Rhodes and R. Gaunt.*—At the top of the discharge pipe is mounted a cup that is joined, by means of its radial wings, to a concentrical and smaller cup into which the siphon's longer leg is fixed. Over the two cups and surrounding the leg is a valve. When that valve is lifted the flush is started by the entrance of water into the discharge pipe through the rounded space between the two cups.

19,628.—VALVES FOR DOMESTIC WATER-SERVICE PIPES: *E. G. Watrous.*—A controlling valve comprises a cylinder, which is supported by a piston-rod, the cylinder's lower end pressing against a valve-seat and also against the flange of the principal valve which rests against its seating. A flange is screwed upon the rod's lower end, and within that rod is a hollow tube that will move through a little distance, and is fitted at its upper end with a time screw and aperture, as well as with a nut which presses upon an upper valve-seat and a spring into the cylinder. A rocking-lever, which is worked by the hinged closet-seat, is linked to the tube's lower end; a depression of the seat turns the lever upwards, whereby the valve rises to allow a flow of water from the chamber which surrounds it, and the rod, together with its valves, will also rise; in the end, the flange around the rod's lower end shuts the outlet. When the lever returns downwards, the upper valve becomes shut, and the rod descends slowly with the admission of air or water into the chamber through the time passage at its upper end.

19,678.—LIGHTNING CONDUCTORS: *K. W. Hedges.*—For joining together the various portions of the conductor a trough is made around a tinned part of the conductor and its connecting portion, point, &c., the trough being filled with some fusible metal. The mould of the trough may be fashioned in a divided form, and for the conductor's attachment to a pipe should be capable of being contracted with screws. For ground plates, the conductor is soldered into its place in the alternately bent portions of the plate in which parallel cuts have been made. For a connexion with the ground, the sheathed conductor is passed down a tube with carbon packing, and the conductor is soldered on to the cap of the tube, which has an elbow that serves to supply moisture whilst extruding dirt and dust.

MEETINGS.

FRIDAY, JANUARY 25.

Architectural Association of Ireland (*Technical Demonstrations*).—Mr. T. Baird on "Drainage" (at 12, Lower Abbey-street). 4.30 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. J. M. Arthur on "Legal Points relative to Building." 8 p.m.

SATURDAY, JANUARY 26.

St. Paul's Ecclesiological Society.—Annual meeting, the Chapter House, St. Paul's, 2.30 p.m.

Builders' Foremen's Association (Memorial Hall, Farringdon-street, E.C.).—Monthly meeting.

Dundee Institute of Architecture.—Visit to St. Luke's Church, &c., West Ferry.

MONDAY, JANUARY 28.

Royal Academy.—Professor Aitchison, R.A., on "St. Peter's," I. 4 p.m.

Surveyors' Institution.—Adjourned discussion on Mr. R. E. Middleton's paper on "The Future of the London Water Supply." 8 p.m.

London Institution.—Mr. H. Elliot Malden on "Earthworks and Castles of Early England." Illustrated. 5 p.m.

Society of Arts (*Cantor Lectures*).—Mr. J. Liberty Tadd on "Elementary Art Education." III. 8 p.m.

TUESDAY, JANUARY 29.

Royal Institution.—Professor J. A. Ewing, M.A., F.R.S., on "Practical Mechanics (experimentally

treated): First Principles and Modern Illustrations."—III. 3 p.m.

Society of Arts (Applied Art Section).—Mr. Hugh Stannus on "Some Examples of Romanesque Architecture in North Italy." Mr. T. G. Jackson, R.A., will preside. 8 p.m.

WEDNESDAY, JANUARY 30.

British Archæological Association.—Mr. R. H. Forster on "The Roman Wall." With limelight illustrations. 8 p.m.

Society of Arts.—Mr. P. T. Macquoid on "Evolution of Form in English Silver Plate." 8 p.m.

City of London College Science Society.—Mr. H. Williams, A.M.I.M.E., on "Refrigeration and Cold Storage." 7.30 p.m.

Northern Architectural Association. — Mr. Allan Greenwell on "Bitumen: its Application in Architecture and Engineering." With lantern illustrations. 7.30 p.m.

THURSDAY, JANUARY 31.

Royal Academy.—Professor Aitchison, R.A., on "St. Peter's." II. 4 p.m.

Society for the Encouragement of the Fine Arts.—Mr. R. Phené Spiers, F.S.A., on "Greek Architecture." Limelight illustrations. 8 p.m.

FRIDAY, FEBRUARY 1.

Architectural Association.—Mr. D. T. Fyfe on "Cretan Architecture." 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. E. J. Steegmann on "Mechanical Physics, Laws of Motion, Hydraulics, &c." 7 p.m.

Royal Institution.—The Rt. Rev. Monsignor G. Molloy, D.Sc., on "Electric Waves." 9 p.m.

Architectural Association of Ireland (Technical Demonstrations).—Mr. B. A. Phillipson on Electricity, &c. (at 10, Lower Baggot-street). 4.30 p.m.

SATURDAY, FEBRUARY 2.

Sanitary Inspectors' Association.—Eighteenth Annual Dinner, Holborn Restaurant. 6 p.m.

British Institute of Certified Carpenters.—Monthly meeting, Carpenters' Hall. 6 p.m.

SOME RECENT SALES OF PROPERTY

ESTATE EXCHANGE REPORT.

January 15.—By BRADSHAW, BROWN, & CO.

Stratford.—31 to 45 (odd), Abbey-lane, u.t. 65 yrs., g.r. 24*l.*	£1,060
By W. R. NICHOLAS & CO.	
Hornsey.—High-st., Eagle House, area 33,000 ft., f., r. 80*l.*	2,000
By ALEX. PHILLIPS & CO.	
Kilburn.—51, Tennyson-rd., f., r. 38*l.*	525
6, Mazenod-av., u.t. 96 yrs., g.r. 10*l.* 10s., e.r. 60*l.*	550
Willesden.—33, Leopold-rd., u.t. 94 yrs., g.r. 5*l.*	265
1 to 9 (odd), Oldfield-rd., u.t. 98 yrs., g.r. 11*l.*	1,500
January 16.—By R. TIDEY & SON.	
Islington.—2, Oakley-rd., u.t. 37 yrs., g.r. 5*l.* 10s., e.r. 50*l.*	560
By HOBSON, RICHARDS, & CO.	
Dalston.—37, 45, and 47, Malvern-rd., and 52, Shrubland-grove; also i.g.r.'s 13*l.* 2s. 6d., u.t. 40½ yrs., g.r. 27*l.* 5s., r. 133*l.*	1,300
Hackney.—2 and 7, London Fields; also i.g.r.'s 12*l.*, u.t. 41 yrs., g.r. 17*l.* 17s. 6d., r. 68*l.*	670
January 18.—By TOPLIS & HARDING.	
Oxford-street.—No. 538, u.t. 31½ yrs., g.r. 5*l.*, r. 210*l.*	3,050
Southwark.—46, Southwark-st., u.t. 44½ yrs., g.r. 140*l.*, r. 440*l.*	4,700
By BLAKE & DANNATT.	
Holloway.—32, Freegrove-rd., u.t. 66 yrs., g.r. 7*l.* 10s., r. 44*l.*	550
By LEOPOLD FARMER & SONS.	
St. John's Wood.—71, Carlton-hill, u.t. 60 yrs., g.r. 11*l.* 11s., e.r. 80*l.*	720
By A. J. SHEFFIELD.	
Stepney.—Eastfield-st., &c., f.g.r. 15*l.*, reversion in 19 yrs.	360
Old Ford.—32 and 34, Roman-rd., u.t. 44 yrs., g.r. 50*l.*, e.r. 350*l.*	1,830
Canning Town.—30 and 32, Nelson-st., f.	380
2, Emily-st., f.	165
Barking, Essex.—9 to 15, Grove-place, u.t. 81½ yrs., g.r. 28*l.*	640

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 16 0	per 1,000 alongside, in river.
Rough Stocks and Grizzles	1 12 0	,, ,, ,,
Smooth Bright Facing Stocks..	2 18 0	,, ,, ,,
Shippers	2 8 0	,, ,, ,,
Flettons.....	1 10 6	,, ,, ,,
Red Wire Cuts ..	1 15 6	,, at railway depôt.
Best Fareham Red	3 11 6	,, ,, ,,
Best Red pressed Ruabon Facing.	5 5 0	,, ,, ,,
Best Blue Pressed Staffordshire ..	4 7 0	,, ,, ,,
Do., Bullnose ..	4 12 0	,, ,, ,,
Best Stourbridge Fire Bricks	4 4 6	,, ,, ,,
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers.....	13 0 0	,, ,, ,,

PRICES CURRENT (*Continued*).

BRICKS, &c.

	£ s. d.	
Headers	12 0 0	per 1,000 at railway depôt.
Quoins, Bullnose, and Flats	17 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers..	16 0 0	,, ,, ,,
One Side and two Ends	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamfered, Squints	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers and Headers ..	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers..	14 0 0	,, ,, ,,
One Side and two Ends	15 0 0	,, ,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
Splays, Chamfered, Squints	14 0 0	,, ,, ,,
Seconds Quality White and Dipped Salt Glazed ...	2 0 0	,, less than best.

	s. d.	
Thames and Pit Sand	8 0	per yard, delivered.
Thames Ballast	6 9	,, ,,
Best Portland Cement	38 0	per ton ,,
Best Ground Blue Lias Lime..	25 6	,, ,,

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 13s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks, 32s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
Ancaster in blocks	2 0	per ft. cube, deld. rly. depôt.
Bath ,, ...	1 7	,, ,,
Farleigh Down Bath ..	1 8	,, ,,
Beer in blocks	1 6½	,, ,,
Grinshill ,, ...	1 10	,, ,,
Brown Portland in blocks	2 2	,, ,,
Darley Dale in blocks..	2 1½	,, ,,
Red Corsehill ,,	2 5	,, ,,
Red Mansfield ,,	2 4½	,, ,,
Hard York in blocks ..	2 10	,, ,,

Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	s. d. 2 8	per ft. super. at rly. depôt.
,, ,, 6 in. Rubbed Ditto..	3 0	,, ,,
,, ,, 3 in. sawn both sides slabs (random sizes)	1 3	,, ,,
,, ,, 3 in. self-faced Ditto	0 9½	,, ,,

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor...	11 5 0	per 1000 of 1200 at ry. dep.
,, best seconds ,,	10 15 0	,, ,,
16× 8 best ,,	6 2 6	,, ,,
20×10 best blue Portmadoc	10 18 0	,, ,,
16× 8 best blue Portmadoc	6 0 0	,, ,,
20×10 best Eureka unfading green.....	11 2 6	,, ,,
16× 8 ,, ,,	6 15 0	,, ,,
20×10 Permanent green	10 0 0	,, ,,
16× 8 ,, ,,	5 12 6	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles..	41 6	per 1,000 at rly. depôt.
Hip and valley tiles....	3 7	per doz. ,, ,,
Best Broseley tiles	48 6	per 1,000 ,, ,,
Hip and valley tiles....	4 0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 ,, ,,
Do. ornamental Do.	60 0	,, ,, ,,
Hip tiles.....	4 0	per doz. ,, ,,
Valley tiles.....	3 9	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes) .	50 9	per 1,000 ,, ,,
Hip tiles	4 1	per doz. ,, ,,
Valley tiles.....	3 8	,, ,, ,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	16 10 0	18 0 0
Deals: best 3 by 9	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.....	12 10 0	13 10 0
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds.....	0 10 0	,, ,, ,,

	At per load of 50 ft.	
Fir timber: Best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Swedish balks.....	2 15 0	3 0 0
Pitch pine timber (35 ft. average)..	4 0 0	4 10 0

JOINERS' WOOD.

	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.....	27 10 0	28 10 0
3 in. by 9 in.	24 0 0	25 0 0
Battens, 2½ in. and 3 in. by 7 in.	20 0 0	21 0 0
Second yellow deals, 3 in. by 11 in.	22 10 0	24 0 0
,, ,, 3 in. by 9 in.	20 0 0	21 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	16 10 0	18 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	25 0 0	26 0 0
Do. 3 in. by 9 in.	22 0 0	23 0 0
Battens.....	16 10 0	17 10 0

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £ s. d.	£ s. d.
Petersburg:—		
Second yellow deals, 3 in. by 11 in.....	18 10 0	20 0 0
Do. 3 in. by 9 in.	17 0 0	18 0 0
Battens.....	14 0 0	14 10 0
Third yellow deals, 3 in. by 11 in.....	15 0 0	16 10 0
Do. 3 in. by 9 in.	14 0 0	14 10 0
Battens.....	12 10 0	13 10 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in..	15 10 0	16 10 0
,, ,, ,, 3 in. by 9 in. ..	14 0 0	15 0 0
Battens.....	12 10 0	13 10 0
Second white deals 3 in. by 11 in.	14 0 0	15 0 0
,, ,, ,, 3 in. by 9 in.	13 0 0	14 0 0
,, ,, battens	11 0 0	12 0 0
Pitch pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—		
First, regular sizes	30 0 0	33 0 0
Broads (12 in. and up)	2 0 0	more.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—		
Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 2 8
Small ,, ,, ...	0 2 4	0 2 7
Wainscot Oak Logs, per ft. cube ..	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 9
¾ in. do. do.	0 0 7	- - -
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch.....	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks—		
Per ft. cube.....	0 2 3	0 3 0

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	8 0 0	9 0 0
Compound Girders ,, ,,	9 10 0	10 15 0
Angles, Tees and Channels, ordinary sections	9 12 6	11 12 6
Flitch Plates	10 0 0	10 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	8 5 0	10 0 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Common Bars.....	9 10 0	- - -
Staffordshire Crown Bars, good merchant quality	9 15 0	10 0 0
Staffordshire "Marked Bars" ..	11 10 0	- - -
Mild Steel Bars.....	9 10 0	10 10 0
Hoop Iron, basis price.....	10 5 0	10 15 0
,, ,, galvanised	16 0 0	- - -
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 15 0	- - -
,, ,, to 24 g.	11 15 0	- - -
,, ,, to 26 g.	13 5 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality.—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	13 0 0	- - -
,, ,, 22 g. and 24 g.	13 15 0	- - -
,, ,, 26 g.....	15 10 0	- - -
Sheet Iron, galvanised, flat, best quality.—		
Ordinary sizes to 20 g.	17 0 0	- - -
,, ,, 22 g. and 24 g.	17 10 0	- - -
,, ,, 26 g.	19 0 0	- - -
Galvanised Corrugated Sheets.—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	13 0 0	- - -
,, ,, 22 g. and 24 g.	13 10 0	- - -
,, ,, 26 g.	14 0 0	1 10 0
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker ..	13 0 0	- - -
,, ,, 22 g. and 24 g	14 0 0	- - -
,, ,, 26 g.	15 0 0	- - -
Cut nails, 3 in. to 6 in...	11 10 0	- - -
(Under 3 in. usual trade extras.)		
LEAD—Sheet, English, 3 lbs. & up.	19 5 0	- - -
Pipe in coils	19 15 0	- - -
Soil Pipe..	22 15 0	- - -
ZINC—Sheet—		
Vieill6 Montagne ..... ton	26 0 0	- - -
Silesian.....	25 10 0	- - -
COPPER—		
Strong Sheet..... per lb.	0 1 1	- - -
Thin ..... ,,	0 1 3	- - -
Copper nails ..... ,,	0 1 3	- - -
BRASS—		
Strong Sheet..... ,,	0 0 11	- - -
Thin ,, ... ,,	0 1 1	- - -
TIN—English Ingots .. .... ,,	0 1 4½	- - -
SOLDER—Plumbers' ..... ,,	0 0 9	- - -
Tinmen's ..... ,,	0 0 9½	- - -
Blowpipe ..... ,,	0 0 10½	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
,, fourths	2¾d. ,, ,,
21 oz. thirds	3¼d. ,, ,,
,, ,, fourths.....	3d. ,, ,,
26 oz. thirds	4¼d. ,, ,,
,, ,, fourths	4d. ,, ,,
32 oz. thirds	5¼d. ,, ,,
,, ,, fourths.....	5d. ,, ,,
Fluted sheet, 15 oz.	3¼d. ,, ,,
,, ,, 21 ,, ...	4¼d. ,, ,,
½ Hartley's Rolled Plate.....	3d. ,, ,,
⅜ ,, ,, ,, ...	3¼d. ,, ,,
½ ,, ,, ,, ...	4d. ,, ,,

[*See also page 99.*

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Water Supply and Sewerage, Donaghadee	Newtownards (Ireland) R.D.C.	Not stated	Feb. 9

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Additions to School, Highland-road	Portsmouth School Board	A. H. Bone, Architect, Cambridge Junction, Portsmouth	Jan. 29
Cast-iron Pipes (1,600 tons)	Wishaw (N.B.) Town Council	W. Rodger, Civil Engineer, County Buildings, Wishaw	do.
Chapel, Hatfield, East Yorks	.....	Rev. F. Holmes, Clowes Cottage, Hornsea	Jan. 30
Hotel, Dalton Brook, near Rotherham	.....	H. L. Tacon, Architect, 11, Westgate, Rotherham	do.
Roads, Sewers, &c., Witton, near Birmingham	.....	Lea & Sons, Surveyors, 19, Cannon-street, Birmingham	do.
Market Buildings, Mill-road, Dewsbury	.....	F. W. Ridgway, Architect, Bond-street, Dewsbury	do.
Cast-iron Pipes, &c.	Hyde Corporation	Borough Surveyor, Town Hall, Hyde	do.
River Wall, &c., Avon Lwyd	.....	M. Lawrence, Engineer, Oakdene, Radyr, Cardiff	do.
Cast-iron Water Pipes, &c., Usworth	Chester-le-Street R.D.C.	J. H. Mole, Surveyor, Chester-le-Street	do.
Private Street Works, Woodlands-road, &c.	Enfield U.D.C.	R. Collins, Court House, Enfield	do.
Making-up Sea-road	Felixstowe U.D.C.	Surveyor, Council Offices, Felixstowe	do.
Granite Setts (1,000 tons)	Hyde Town Council	T. Brownson, Town Hall, Hyde	do.
Five Houses, Uppermoor, Pudsey, Yorks	.....	C. S. Nelson, Architect, 15, Park-row, Leeds	do.
Sewerage Works, near James-street, &c	Oswaldtwistle (Lancs) T.C.	R. N. Hunter, Surveyor, Town Hall, Oswaldtwistle	do.
Road Metal (1,450 tons), near Abingdon	Culham R.D.C.	B. Challenor, 59, Stert-street, Abingdon	do.
Road Works, Bonner-hill-road	Kingston-on-Thames Corporation	H. A. Winser, Clattern House, Kingston	do.
Church and School, Measborough Dyke	.....	Senior & Clegg, Architects, Regent-street, Barnsley	Jan. 31
Additions to Schools, Hotwell-road, Bristol	Comte. of Clifton Indus. Schools	W. L. Bernard, Archt., 4, St. Stephen's-chambers, Bristol	do.
Building Work at Workhouse	Manorhamilton (Ireland) Gdns.	P. Keany, Board Room, Workhouse, Manorhamilton	do.
Six Houses, New Hunstanton, Norfolk	.....	E. Walker, Dersingham Villa, New Hunstanton	do.
House, Stones, Oxenhope, Yorks	.....	T. W. Bottomley, 16, Princes-street, Haworth	do.
Well Sinking, near Pytchley	Kettering R.D.C.	H. Norwood, Engineer, 11, Bowling Green-avenue, Kettering	do.
Laying Cast-iron Pipes (6½ miles), Gair	Wishaw (N.B.) Town Council	W. Rodger, Civil Engineer, County Buildings, Wishaw	do.
Road Works, &c.	Cockermouth R.D.C.	Mr. Wilson, Civil Engineer, Cockermouth	do.
Kerbs and Setts	Rotherham R.D.C.	R. Bradbury, Surveyor, 29B, High-street, Rotherham	do.
Road Works, &c., Bannel-head, near Kendal	Mr. R. Richmond	S. Shaw, Architect, Kendal	do.
Granite Road Metal	Kettering R.D.C.	C. W. Lane, Council Offices, Kettering	do.
Sewering, Fencing, &c., Knotty Ash, near Liverpool	.....	E. Kirby, 5, Cook-street, Liverpool	do.
Whinstone, Slag, &c., Naburn, Escrick, &c	Escrick (Yorks) R.D.C.	F. A. Camidge, 3, Stonegate, York	do.
Surveyors' Materials	Blackpool Corporation	J. S. Brodie, Borough Surveyor, Town Hall, Blackpool	do.
Cast-iron Pipes, &c., Margate	Isle of Thanet Gas Company	J. Dougall, Engineer, The Dane, Margate	do.
*Stores, Cart Shed, &c.	Sandgate U.D.C.	See Advertisement	do.
Granite Road Metal (16,000 tons)	Bucks County Council	R. J. Thomas, County Surveyor, County Hall, Aylesbury	Feb. 1
Workshop and Foundry, North-parade, Halifax	.....	W. Richardson & Son, Hall-street, Halifax	do.
Warehouse and Stabling, Francis-street, Halifax	.....	J. Drake & Son, Architects, Queensbury	do.
Waterworks Extensions, Fylingdales	Whitby R.D.C.	J. Dickinson, Robin Hood's Bay	do.
Surveyor's Materials	Stockport Corporation	J. Atkinson, Civil Engineer, St. Petersgate, Stockport	do.
Mortuary, &c., Priory-road	Huntingdon Corporation	J. P. Maule, High-street, Huntingdon	do.
Foundation Works, Port Talbot, Wales	.....	J. Jardine, Engineer, Port Talbot	do.
Broken Granite, near Chester	Hoole U.D.C.	C. Atkin, Surveyor, Council Offices, Hoole	do.
*Works and Materials	St. Marylebone Borough Council	Engineer, Town Hall, St. Marylebone	Feb. 2
*Materials	do.	do.	do.
Granite Road Metal, Norwich	Norfolk County Council	T. H. B. Heslop, Civil Engineer, Norwich	do.
Shops and Offices, Queen-street, Cardiff	.....	Teather & Wilson, Architects, Queen-street, Cardiff	do.
Granite Road Metal	Sleaford (Lincs) U.D.C.	E. Clements, Council Offices, Sleaford	do.
Granite and Flint Road Metal	Slough U.D.C.	Surveyor, Council Offices, Slough	do.
Sewer and Roads, Burntisland, N.B	Mr. J. Shepherd	W. D. Sang, Civil Engineer, Kirkcaldy	do.
Electrical Equipment	Bradford Corporation	F. Stevens, Town Hall, Bradford	do.
Road Works, Foundry-road, Baslemere	Hambledon R.D.C.	E. L. Lunn, Surveyor, 36, High-street, Guildford	do.
Car Shed and Offices, Bulwell	Nottingham Corporation	A. Brown, Civil Engineer, Guildhall, Nottingham	Feb. 4
Laying Water Main, Franklin-street	Basford (Notts) R.D.C	G. & F. W. Hodson, Civil Engineers, Bank-chmbrs., Loughborough	do.
Electric Lighting Station, Roselands	Eastbourne Corporation	R. M. Gloyne, Civil Engineer, Town Hall, Eastbourne	do.
Several Cottages, Maesteg, Wales	Gelli Builders' Society	D. Sims Rees, Engineer, Maesteg	do.
Hotel, Freeman's-place, Darlington	West Auckland Brewery Company	F. H. Livesey, Architect, Newgate-street, Bishop Auckland	do.
Additions to Schools, Pollington	.....	H. B. Thorp, Architect, Goole	do.
Macadam, Setts, Kerbs, &c.	Grimsby Town Council	H. G. Whyatt, Civil Engineer, Town Hall, Grimsby	do.
Sewerage Works, Egerton-road, &c.	Withington (Lancs) U.D.C.	A. H. Mountain, Civil Engineer, Town Hall, Withington	do.
Street Works, &c.	Normanton U.D.C.	A. Hartley, Surveyor, County-chambers, Castleford	do.
Pipe Sewers, &c., Abridge, Essex	Ongar R.D.C.	W. N. Jarvis, Surveyor, Ongar	do.
New Streets, Cleethorpes	.....	T. Lamming, Surveyor, 43, Victoria-street, Grimsby	do.
Electric Lighting Station, &c., Roselands	Eastbourne Corporation	R. M. Gloyne, Civil Engineer, Town Hall, Eastbourne	do.
*Separation Wards	Frome Union	J. Ace Beynon, Architect, Nunney-road, Frome	do.
*Workmen's Cottages	Ealing U.D.C.	Engineer, Public Buildings, Ealing, W.	do.
*Oak Fencing	London County Council	Parks Department, 11, Regent-street, S.W.	Feb. 5
*Making-up Roads	Wandsworth Borough Council	Council House, East Hill, Wandsworth	do.
Lime	Windsor Royal Gaslight Company	J. H. Strange, 2, Victoria-street, Windsor	do.
Twelve houses, near Albert Reservoir, Halifax	.....	M. Hall, Architect, 29, Northgate, Halifax	do.
Water Mains, &c., Tower Hamlets-road	Dover Town Council	H. E. Stilgoe, Civil Engineer, Town Hall, Dover	do.
School and Cottage, Spittlegate, Grantham	.....	G. Camplin, Surveyor, 11, Elmer-street, Grantham	do.
Sewer Outfall Works, Lower Woodside	Lymington Town Council	J. P. Jones, Engineer, 83, High-street, Lymington	Feb. 6
Street Works, Kelham-street	Balby U.D.C.	R. A. H. Tovey, Council Offices, Balby (Yorks)	Feb. 9
Surveyor's Materials	Midhurst (Sussex) R.D.C.	A. G. Gibbs, Surveyor, Council Offices, Midhurst	Feb. 11
*Children's Home	St. George's (Hanover-sq.) Union	E. T. Hall, Architect, 57, Moorgate-street, E.C.	Feb. 12
*Electric Light Station	Whitby U.D.C.	Clerk, Council Offices, Whitby, Yorks	do.
*Supplies, &c.	West Ham Borough Council	See Advertisement	Feb. 13
*Generating Station	Shoreditch Borough Council	Town Hall, Old-street, E.C.	Feb. 14
Surveyor's Materials	Lambeth Borough Council	H. Edwards, Civil Engineer, Town Hall, Kennington-green, S.E.	do.
*Boys' Home	London County Council	Architects' Department, County Hall, Spring Gardens, S.W.	Feb. 15
*Purchase of Old Coastguard Buildings	The Admiralty	See Advertisement	do.
*Two Board Schools	Ashford (Middlesex) School Board	Fleetwood, Son, & Eversden, 3, New Court, Lincoln's Inn, W.C.	Feb. 18
*Broken Granite	Sussex County Council	See Advertisement	Feb. 20
School Buildings	Lerwick School Board	R. D. Ganson, School Board Offices, Lerwick	do.
*Iron Staircases	Wadsley Asylum Committee	See Advertisement	Feb. 21
*Car Sheds, Stores, &c.	Wallasey U.D.C	J. H. Crowther, Engineer, Great Float, near Birkenhead	do.
*Engine and Pump House	do.	do.	No date
Additions to Schools, Derby-road, Watford	Governors	C. P. Ayres, Architect, Burvale, Watford	do.
Warehouse, Blackfriargate, Hull	Messrs. Hewitt Bros., Ltd.	J. M. Dossor, Architect, 2, Manor-street, Hull	do.
Seven Cottages, Dalton-hill, Huddersfield	.....	J. C. Spivey, Architect, Bank-street-chambers, Leeds	do.
Business Premises, Hillsborough	Sheffield Laundry Company	W. J. Taylor, Architect, Bank-street, Sheffield	do.
Hide and Skin Market, Mill-road, Dewsbury	.....	F. W. Ridgway, Architect, Borough-chambers, Dewsbury	do.
Sewerage Work, Monkseaton Estate, Newcastle-on-T.	.....	Marshall & Tweedy, Architects, 4, Nortnumberland-st., Newcastle	do.
Additions, &c., to Bloso House, Borrowash, nr. Derby	.....	E. R. Ridgway, Architect, Long Eaton	do.
Public Convenience, Silver-street	Bedford Corporation	J. Lund, Borough Surveyor, Town Hall, Bedford	do.
Additions to Gawithfield, near Ulverston	Mr. W. F. Egerton	Settle & Farmer, Architects, Ulverston	do.

[See also next page.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Draughtsman	Hackney Borough Council	2*l.* 2*s.* per week	Jan. 29
Clerk of Works	Newport (Isle of White) Corp.	3*l.* per week	Feb. 4
*District Superintendents (2)	Camberwell Borough Council	150*l.* per annum	Feb. 6
Assistant Electrical Engineer	Devonport Corporation	130*l.* per annum	Feb. 7
*Drainage Inspector	Bethnal Green Borough Council	120*l.* per annum	Feb. 21
*Junior Assistant	Hale U.D.C.	.....	No date
*Assistant	Hove Corporation	35*s.* per week	do.
*Temporary Assistants (2)	Walthamstow U.D.C.	2*l.* per week	do.

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.*—. *Contracts, pp.* iv. vi. viii. x. & xix. *Public Appointments, pp.* xvi. xvii. & xix.

PRICES CURRENT (*Continued*).

OILS, &c.	£	s.	d.
Raw Linseed Oil in pipes ... per gallon	0	2	10
" " " in barrels ... "	0	2	11
" " " in drums ... "	0	3	1
Boiled " " in pipes ... "	0	3	1
" " " in barrels ... "	0	3	2
" " " in drums ... "	0	3	4
Turpentine, in barrels ... "	0	2	8
" in drums ... "	0	2	10
Genuine Ground English White Lead ... per ton	27	0	0
Red Lead, Dry ... "	24	10	0
Best Linseed Oil Putty ... per cwt.	0	9	0
Stockholm Tar ... per barrel	1	10	0

VARNISHES, &c.	per gallon £	s.	d
Fine Elastic Copal Varnish for outside work ..	0	16	6
Best Elastic Copal Varnish for outside work ..	1	0	0
Best Elastic Carriage Varnish for outside work	0	16	6
Best Hard Oak Varnish for inside work ...	0	10	6
Best Extra Hard Church Oak Varnish for inside work ...	0	10	6
Fine Hard Copal Varnish for inside work ...	0	16	0
Best Hard Copal Varnish for inside work ...	1	0	0
Best Hard Carriage Varnish for inside work ...	0	16	0
Extra Pale Paper Varnish ...	0	12	0
Best Japan Gold Size ...	0	10	0
Best Black Japan ...	0	16	0
Oak and Mahogany Stain ...	0	9	0
Brunswick Black ...	0	9	0
Berlin Black ...	0	15	0
Knotting ...	0	10	0
Best French and Brush Polish ...	0	10	0

TO CORRESPONDENTS.

W. P.—T.A. C. (Below our limit.) M. & F. (Amounts should have been stated.)

NOTE.—The responsibility of signed articles, letters, and papers read at meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ALDERSHOT.—For the erection of four shops at the corner of High-street and Wellington-street, for Mrs. L. B. Goldman. Mr. Geo. Ashby Lean, architect and surveyor, Palace Chambers, Westminster, S.W.:—

Wm. Smith	£4,500 0	Martin Wells & Co.	£3,915 0
Lawrence & Sons	4,372 0	G. Kemp	3,890 0
Wm. Watson	3,960 0	J. Harris	3,647 5
H. J. Williams	3,950 0		

ALDERSHOT.—For alterations to Messrs. Allen & Lloyd's mineral water factory. Mr. Geo. Ashby Lean, architect and surveyor, Palace Chambers, Westminster, S.W.:—

M. Bateman	£1,050	G. Kemp	£1,025

ANDOVER.—For additions, &c., to workhouse for the Guardians. Mr. J. Wormald, surveyor, Andover:—

A. Burley	£187 14	Beale & Sons	£138 15
H. Cook	159 0	Sydney Bell, Andover*	129 0
Annett & Son	140 0		

ASHTON-UNDER-LYNE.—For the execution of street works, Queen-street, &c., for the Hurst Urban District Council. Mr. Samuel Sluit, Surveyor to Council, Council Offices, King-street, Hurst:—

Isaac Powell	£4,778 0 0	J. & J. Woodhead, Ashton-under-Lyne*	£4,521 10 8

BECKENHAM. — For repairs at the George Inn. Messrs. Chart, Son, & Reading, architects, Croydon:—

Smith & Sons	£162	Goulder*	£141

BRIGHTON.—For alterations and additions at No. 60, Queen's-road, for Mr. A. G. Sharman. Mr. W. C. F. Gillam, architect, Brighton:—

Saunders Bros.	£697	G. R. Lockyer	£639
Titcombe & Son	657	Brown & Son	560
S. H. Diplock	645	H. J. Penfold*	547

BRIGHTON.—For alterations and additions at No. 3, 4, 5, Bond-street, for Mr. A. G. Sharman. Mr. W. C. F. Gillam, architect, Brighton:—

Brown & Son	£796 0 0	W. & T. Garrett	£724 0 0
H. I. Penfold	737 0 0	G. R. Lockyer	692 0 0
Titcombe & Son	735 0 0	J. Barnes	677 0 0
S. H. Diplock	729 0 0	Saunders Bros.*	575 10 0

CARDIFF.—For the erection of an electric tram depot, Pendyris-street, for the Corporation. Mr. W. Harpur, C.E., Borough Engineer, Town Hall, Cardiff:—

W. H. Ingleson	£8,338 11 0	Knox & Wells	£7,220 0 0
A. J. Howell	8,150 0 0	Melhuish Bros.	7,179 0 0
G. Couzens & Co.	7,693 8 10	E. Turner & Sons	7,032 19 2
G. Griffiths	7,682 19 4	C. C. Dunn	7,024 8 6
J. H. Venning	7,671 8 0	J. S. Chubb & Co.	6,984 0 0
Jas. Allen	7,661 16 11	W. T. Morgan	6,930 0 0
S. Shepton & Sons	7,484 17 0	E. R. Evans & Bros.	6,927 0 0
F. Couzens	7,481 8 5	Price Bros.	6,870 0 0
W. E. Willis	7,277 17 3	J. Thomas	6,869 0 0
W. Symonds & Co.	7,260 5 6	D. W. Davies, Cardiff*	6,774 0 0
D. Thomas & Son	7,222 0 0		

CHEAM.—For supplying and fitting up boilers and heating apparatus to the wards and for fitting up the disinfecting station and two steam laundries at the Small-pox Hospital at North Cheam, for the Croydon and Wimbledon Joint Board. Messrs. Chart, Son, & Reading, architects, Croydon:—

Fraser & Co., Commercial-road East £2,566
[Five others tendered.]

CROYDON.—For the erection of a shop at Boston-road. Messrs. Chart, Son, & Reading, architects, Croydon:—

Goulder	£1,020 0	Smith & Sons	£689 0
Waller	769 0	Bacon*	659 10
Worsfold & Sons	746 0		

CROYDON.—For alterations at the Croham Arms Inn. Messrs. Chart, Son, & Reading, architects, Croydon:—

Smith & Sons	£189 0 0	Bacon	£123 0 0
Truett & Steel	160 0 0	Tomkins	110 10 0
Goulder	130 0 0		

CROYDON.—For repairs at the Royal Oak inn. Messrs. Chart, Son, & Reading, architects, Croydon:—

Truett & Steel	£158 0 0	Goulder	£137 0 0
Smith & Sons	145 0 0	Bacon*	117 2 6

FARNBOROUGH.—For fitting up the bar of the Queen's Head Inn, Green-street Green. Messrs. Chart, Son, & Reading, architects, Croydon:—

Cohen & Co.	£318	Knight	£212
Vanders & Son	224	Simpson & Son*	149
Matthews	214		

GLOUCESTER.—For alterations and additions to Barton Hall and the erection of two new shops in connexion therewith, for Mr. William Sandoe. Mr. Harry A. Dancey, architect, Gloucester:—

Godwin & Brassington	£497 10 0	T. Toomey	£479 17 6
M. Byard	492 17 6	Gurney & Sons, Gloucester*	473 13 10
J. Simmonds	487 10 0		

HANWELL.—For the erection of schools for 1,230 children, board's offices, and caretaker's house at Springfield-road, Hanwell. Mr. William Pywell, architect. Quantities by Mr. Max Clarke:—

Leslie & Co.	£28,129	W. Wisdom	£23,500
J. S. Kimberley	25,647	W. Blackburn	23,068
J. Appleby	25,500	Johnson & Son	23,000
R. Tonge	25,232	Coulson & Lofts	22,770
C. G. Hill	24,100	Messom & Sons	22,327
A. & B. Hanson	24,045	Hunt & Son	21,991
Stephens, Bastow & Co.	23,949	Kingerlee & Sons, Oxford†	21,457

HERTFORD. — For the execution of road works, Queen's-road, &c., for the Corporation. Mr. J. H. Jevons, C.E., Borough Surveyor, Hertford:—

Griffiths & Co., Limited	£2,512	J. Smart	£2,130
Wallan & Inns	2,396	G. F. Tomlinson	2,052
Jos. Jackson	2,242	Free & Sons	1,952
S. Saunders	2,209	A. T. Catley, London*	1,797
Laurance & Thacker	2,143		

KESWICK.—For the erection of a new police station and court-house at Keswick for the County of Cumberland Property Committee. Mr. Geo. Dale Oliver, architect, Carlisle:—

Excavating, Masonry, and Brickwork.

Isaac Hodgson, Stranger-street, Keswick* .. £1,344 0 0

Slating.

Isaac Hodgson, Stranger-street, Keswick* .. 130 0 0

Carpentry and Joinery.

Milbun & Son, Borrowdale-road, Keswick* .. 493 0 0

Plumbing, Plastering, Painting, and Glazing.

Joseph Dixon, Penrith* ... 388 17 5

Ironwork.

Raybould & Co., Ltd., Marshside, Workington* ... 75 0 0

LONDON.—For making up footway, &c., Dawes-road (Section No. 1), for the Fulham Borough Council. Mr. Chas. Botterill, Surveyor, Town Hall, Walham Green, S.W.:—

J. Mears	£251	Nowell & Co.	£234
G. Wimpey	244		

LONDON.—For erection of offices at North Woolwich, for Messrs. Moore & Nettlefold. Mr. Thomas Dinwiddy, architect:—

W. Mills	£1,159 0	R. Soper	£958 10
T. D. Leng	1,077 0	W. Harris	937 0

LONDON.—For the erection of new staircases, and various alterations at Morton's Theatre, Greenwich, for Mr. Arthur Carlton, and co-directors. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, S.E.:—

Lole & Lightfoot	£1,963	H. Groves	£1,779
W. Mills	1,798	T. D. Leng*	1,670

MERTON.—For fencing, &c., at the Royal Six Bells, High-street, Collier's Wood. Messrs. Chart, Son, & Reading, architects, Union Bank Chambers, Croydon:—

Haydon	£136	Goulder*	£110

MINEHEAD (Somerset).—For the erection of market buildings, The Parade, for the Urban District Council. Mr. W. J. Tamlyn, architect, Minehead:—

J. Steer	£2,660 0	Passmore & Derrick, Minehead†	£1,612 10
C. Bryer, Jnr.	1,802 6		
Hurford & Son	1,620 0		
J. Burgess	1,614 0		

MITCHAM. — For erecting a pair of labourers' cottages, Tamworth-lane, Mitcham. Messrs. Chart, Son, & Reading, architects, Union Bank Chambers, Croydon:—

Bacon	£521	Haydon, Mitcham*	£440
Smith & Sons	485		

MITCHAM.—For the erection of a cottage at Western-road, Mitcham (to complete block of four), for Mr. R. A. Smale. Messrs. Chart, Son, & Reading, architects, Croydon:—

Bacon, Thornton Heath* ... £242

MITCHAM.—For relaying culvert and drainage works on the Inglemere Estate, for Mr. George Neal. Messrs. Chart, Son, & Reading, surveyors, Croydon:—

E. Iles, Mitcham* ... £1,069

MITCHAM.—For the erection of cottages at the Wood-ite Works. Messrs. Chart, Son, & Reading, architects, Croydon:—

Haydon	£1,200	Rayner	£978
Bacon	1,090	Brooker*	750

MITCHAM.—For the erection of a house and shop at London-road. Messrs. Chart, Son, & Reading, architects, Croydon:—

Stewart & Sons	£1,538 0	Burges & Sons	£1,175 0
E. J. Burnand	1,263 0	Bacon*	1,098 10
Haydon	1,234 0		

[*See also next page.*

MITCHAM. — For additions at Singlegate-terrace. Messrs. Chart, Son, & Reading, architects, Croydon :—

Bacon.....	£472 0 0	Burges & Sons*	£425 0 0

MOUNTAIN ASH (Wales).—For the erection of a chapel, for the English Baptist Trustees. Mr. T. W. Millar, architect, Mountain Ash :—

Jenkins & Sons	£3,475 0 0	D. Harris, Mountain Ash*	£3,200 0 0
F. Mills	3,456 7 8		
J. L. James ..	3,183 0 0		

[Architect's estimate, £3,341.]

NEWBRIDGE (Mon.).—For additions to the Beaufort Arms hotel, for Messrs. Webb Bros. & Co. Mr. F. R. Bates, architect, 26, Westgate Chambers, Newport, Mon. :—

Pugh & Co.	£1,852	C. T. Morgan, Newbridge*	£1,737
J. Jenkins.....	1,755		
Leadbeter Bros.	1,750		

NOTTINGHAM.—For the erection of a basket warehouse, Radford-road, for Mr. P. Mathieson. Messrs. Sands & Walker, architects, Angel-row, Nottingham :—

T. Whittaker	£3,250	F. Messom	£2,960
J. Hodson & Son ..	3,244	J. H. Williamson & Co.	2,950
J. H. Vickers, Ltd.	3,229	T. Long	2,935
J. Cooper & Son	3,060	T. Lees Bros	2,902
W. Maule.....	3,000	J. G. Short, Sneinton, Nottingham*	2,832
T. Cuthbert	3,000		
Wm. Crane, Ltd. ..	2,965		

NUNEATON.—For the erection of electric lighting station for the Urban District Council. Mr. J. S. Pickering, C.E., Council Offices, Nuneaton. Quantities by Engineer :—

W. Cunliffe ..	£2,873 6 8	T. Smith, Nuneaton*	£2,509 6 1
J. Shilton	2,825 16 6		
J. Dallon	2,530 0 0		

OADBY (Leicestershire).—For the execution of street works, Regent-street, &c., for the Blaby Rural District Council. Mr. James Turner, surveyor, Saffron-lane, Glen Parva, near Leicester :—

Brant & Son ..	£809 10 2	G. Holme.....	£698 15 9
G. Ghilbrick, Leicester* ..	783 0 0	(Withdrawn.)	

PENGE.—For drainage works at the Goldsmiths' Arms Inn. Messrs. Chart, Son, & Reading, architects, Croydon :—

Stewart	£247 0 0	Akers & Co.....	£151 0 0
Hawkins.....	189 0 0	French	148 0 0
Tomkins.....	167 0 0	Goulder*	122 0 0

RAMSGATE.—For alterations to 6, Queen-street for conversion to offices, for Mr. W. G. Page. Mr. Stanley H. Page, architect, Ramsgate :—

Hayward & Paramor..	£322	Larkin & Son, Ramsgate*	£299
E. R. Dunn	304		

RAMSGATE.—For the erection of stables for "Abbey Gate," for Mr. W. G. Page. Mr. Stanley H. Page, architect, Ramsgate :—
Hayward & Paramor, Folkestone* £472 3 11

SANDWICH.—For the re-erection of a public-house in "The Butchery," for Messrs. Tomson & Wotton. Mr. Stanley H. Page, architect, Ramsgate :—
W. C. Simmons, Sandwich* £560

SHIPLAKE-ON-THAMES.—For the erection of a boathouse, with rooms over, on the Boling Court Estate, for Mrs. English. Messrs. Geo. Ashby Lean & Son, architects and surveyors, Palace Chambers, Westminster, S.W. :—

Collin & Cattley..	£1,619 0	Ruffell Bros.	£1,459 0
Lewis & Brother	1,525 0	Walden & Cox ..	1,332 6

SHIPLAKE-ON-THAMES.—For the erection of a riverside cottage, for Mrs. Warden. Messrs. Geo. Ash by Lean & Son, architects and surveyors, Palace Chambers, Westminster, S.W. :—

C. Clements	£950 0	Walden & Cox	£840 0
Silva & Sons, Ltd.	937 0	Ruffell Bros.	819 5
Lewis & Brother ..	862 10		

STOCKPORT.—For the erection of tramcar-shed, workshops, &c., for the Corporation. Mr. John Atkinson, C.E., St. Petersgate, Stockport :—

Byrom	£5,956 4	M. Lane	£5,220 0
Burgess & Galt..	5,830 0	D. Eadie.....	5,200 0
Robinson & Sons	5,790 0	J. Briggs.....	5,153 0
T. Hoe.....	5,788 18	W. Pownall, Stockport*.....	4,900 0
D. Mullaney	5,494 0		
H. Bardsley	5,270 0		

THORPE.—For additions to The Cottage, Thorpe, for Mrs. Wm. Birkbeck. Messrs. Bottle & Olley, architects, Great Yarmouth :—

Downing & Son	£1,230	Youngs & Son, Norwich*.....	£1,087
Carter & Wright....	1,194		
J. S. Smith	1,117		

WESTERHAM.—For repairs, &c., at the Grasshopper Inn. Messrs. Chart, Son, & Reading, architects, Croydon :—

Churchill	£193 0 0	Quittenton	£125 0 0
Truett & Steel..	135 0 0	Goulder	120 0 0
Martin & Son ..	126 10 0	Tomkins*	110 10 6

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder," by *Friday Morning's Post*.

W. H. Lascelles & Co.,

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 1365, London Wall.

HIGH-CLASS JOINERY,
LASCELLES' CONCRETE

Architects' Designs are carried out with the greatest care.

CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

C. B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT,
TEAK, VENEER, and TIMBER MERCHANT,

Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FARRINGDON ROAD, E.C.

THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, No. 274 Holborn. Tele. Address: "SNEWIN London."

THE BATH STONE FIRMS, Ltd.

BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.)
Chief Office :—Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
LITHOGRAPHERS AND PRINTERS,
Estate Plans and Particulars of Sale promptly executed.
4 & 5, East Harding-st., Fetter-lane, E.C.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch. [Telephone No. 634 Westminster.
METCHIM & SON { 8, PRINCES STREET, ST. GEORGE'S ST. WESTMINSTER
"QUANTITY SURVEYORS' DIARY AND TABLES," For 1901, price 6d. post 7d. In leather 1/- Post 1/1.

ARTESIAN WELLS

Driven Tube Wells. Driving Apparatus.

WINDMILLS.

THE LION, made of Steel, with Steel Tower; for Pumping from Deep or Shallow Wells, and for Driving Dynamos and Sewage Pumps.
PUMPS OF ALL DESCRIPTIONS.
ALFRED WILLIAMS & CO.
Hydraulic Engineers. Contractors to H.M. Govt.
814, OLD FORD RD. BOW, LONDON, E.
Telegrams: "Ventulus, London" Telephone, 694 Eastern.

PILKINGTON & CO

(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.
Telephone No., 2751 Avenue

Registered Trade Mark,

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING.
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.
SEYSSEL ASPHALTE.

DRY PLANKS and BOARDS.

IN ALL KINDS OF HARDWOODS.

MAHOGANY (Cuba, Honduras) — TEAK—MAPLE — WALNUT
WAINSCOT OAK — BIRCH — BROWN OAK
PENCIL CEDAR — ASH—WHITEWOOD — ROSEWOOD
CEDAR HONDURAS and PENCIL — Large Stock of FIGURED WOODS

WM. MALLINSON & CO.,

(Telephone, 1319 Avenue.)
Offices, 136 and 138, HACKNEY ROAD, LONDON, N.E.

Store Yards: DISS STREET, MENOTTI STREET, DERBYSHIRE STREET, CHESHIRE STREET, HAGUE STREET, } BETHNAL GREEN.
PARNELL WHARF: OLD FORD.

LARGE STOCK of
FASCIAS, COUNTER-TOP BOARDS
Always on hand, also VENEERS.
THE LARGEST STOCK OF CUBA IN THE COUNTRY.

The Old Nine Elms Brand.

PORTLAND CEMENT

ESTABLISHED 1810.

ROMAN, MEDINA, PARIAN, KEENE'S, PLASTER and WHITING.

Manufactured by

FRANCIS & COMPANY, LIMITED.

Prize Medals—London, 1851; Philadelphia, 1876; Paris, 1878; Calcutta, 1883; London, 1884; Gold Medal, Paris Exhibition, 1889; Chicago, 1893. Offices: 4, Eastcheap, London, E.C. Wharf: 143, Grosvenor-road, Pimlico, S.W. *Works: Cliffe-on-Thames.*—Tel. No. 132, Avenue.

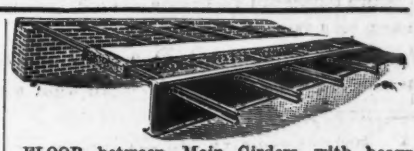
Panelled Construction, with Ribbed Bars in Steel Stirrups.

FLAT Construction, with Ribbed Bars in Stirrups.

3 FORMS of

COLUMBIAN CONCRETE FIREPROOF FLOORS.

See Catalogue (free on application) for details.
See also Report of British Fire Prevention Committee of our Fire Test made June 14th, 1899.



FLOOR between Main Girders, with heavy Ribbed Bars.

Main Girder Casing, with Concealed Anchors.

COLUMBIAN FIREPROOFING CO. Ltd.

37, KING WILLIAM ST LONDON, E.C.

VAL DE TRAVERS ASPHALTE

(COMPRESSED OR MASTIC)

Is the best material for Roadways, Footways, Damp Courses, Roofings, Warehouse Floors, Basements, Stables, Coach Houses, Slaughter Houses, Breweries, Lavatories, Tennis Courts, &c. *Full particulars can be obtained from the Offices,*

HAMILTON HOUSE, BISHOPSGATE STREET WITHOUT, E.C.

FOR BUILDINGS *of the very highest class* there is no better ***Sash Line*** obtainable than ***THE SAMSON SOLID BRAIDED,*** while its low cost permits its use in the ***humblest.*** Tenfold the durability of the ordinary hollow-braided lines, ***at practically the same price.***

Of all First-class Dealers everywhere.

WM. E. PECK & CO. (Inc.), 8, Bradford Avenue, London, E.C.

SAMUEL WRIGHT & CO.

Crown Works, André Street, Amhurst Road, Hackney, N.E.

FIBROUS PLASTER SLABS.

SAMPLES AND PRICES ON APPLICATION.

RELIEF DECORATIONS

In Fibrous Plaster, Composition, Carton Pierre, and Wood.

GEO. JACKSON & SONS.

Specimens of ceilings, cornices, chimney-pieces, &c., in the above materials can be seen at

49, RATHBONE PLACE, LONDON, W.

PATENT WIRED TERRA COTTA LATHING.

What is Wired Terra Cotta Lathing?
It is an invention to render metal fireproof by incorporating wire with terra cotta by a patent process which also oxidizes the iron.
Recent trials by the British Fire Prevention Committee proved that it was absolutely fire resisting. After exposure to a temperature of 2,000 Fahr. for 1 hour and 15 minutes a 2-inch partition, as well as a fireproof floor and ceiling, were found to be uninjured.
Enormous losses to Buildings have occurred by the action of cold water from the fire engine. This partition was not affected at the trial.
Directions to fix are sent. Any labourer can fix it.

There is a great saving in space of 2 inches each side of a partition as compared with Brick Partitions.
Easy to bend and cut.
Reliable as a non-conductor of sound.
Rigidity when plastered is its strong point.
As a covering to girders and joists, and for lifts, staircase enclosures, and ventilating shafts it cannot be excelled.

Ceilings constructed of this are fireproof shields.
Only the price of wood stud partitioning.
The key for plaster is unique
Treated as a Fireproof floor it has great strength.
All plasterers like it.

Lathing in metal will expand and throw off its protection.
Architects should specify "**Wired Terra Cotta** Lathing."
The material is specified by the L.C.C. Metropolitan Asylums Board, and leading London Architects.
Hundreds of thousands of yards specified recently.
Immense advantages over any other lathing. It is the cheapest material to use as a centering for concrete floors
No fire resisting building complete without
Give it a trial. You will use it again.

Apply to the

MURAL & DECORATIONS SYNDICATE, LIMITED.

OFFICES AND SHOW ROOMS:
14, NEW BURLINGTON PLACE, 183-5, REGENT STREET, LONDON, W.

CITY ADDRESS AND REGISTERED OFFICE: 50, MILTON STREET, LONDON, E.C.

WORKS: 84, EDEN STREET, KINGSTON-ON-THAMES.

TELEPHONE: 1345, LONDON WALL.

TELEGRAMS: APOSTROPHE, LONDON.

SPECIAL ADVANTAGES TO PRIVATE INSURERS.

THE IMPERIAL Insurance Company, Limited. FIRE. (Est. 1803), 1, Old Broad street, E.C. and 22, Pall Mall, S.W.

Subscribed Capital, 1,200,000*l.* Paid up 300,000*l.* Total Funds over 1,500,000*l.*—E. COZENS SMITH, General Manager.

BUSINESSES WANTED & FOR SALE

TO BUILDERS and CONTRACTORS.—TO BE SOLD OR LET.—Valuable BUSINESS PREMISES, comprising large builder's yard, offices, showrooms, stabling, and shops, for every branch of the business, saw mills of recent construction worked by gas engine, and machinery of latest type, in splendid working order; situated in the best position of the City, of Canterbury. Very valuable business connexion, and a large and successful business carried on for many years past. Sole reason of disposal, recent death of the proprietor.—Apply by letter to EXECUTORS, The Beeches, Canterbury.

TO BE LET or SOLD, a good WHEELWRIGHT and BLACKSMITH'S BUSINESS, in same hands 15 years. Two and a half miles from market town. Two good houses and shops, with large yard.—Box **233**, Office of "The Builder."

FIRST-CLASS old-established Builder's BUSINESS FOR SALE, with good stock and machinery, at valuation, in a prosperous town, 30 miles from London. Extensive premises and convenient residence. Freehold would be sold, or on lease if desired. Death of proprietor only reason for selling.—For particulars, address Box **264**, Office of "The Builder."

FOR SALE, BUILDER and CONTRACTOR'S. Good jobbing trade, in favourite suburban district. Established 70 years. Spacious yards and premises, also houses. Low rental on lease. Books open to accountant's inspection. Good profits. Estate to be shortly opened for good houses. Trade and bank references; or competent practical PARTNER might be entertained.—Box **105**, Office of "The Builder."

BUILDER and DECORATOR'S BUSINESS FOR SALE, in the best part of Hove, Sussex, in same hands over twenty-four years, TO BE DISPOSED OF as a genuine and Going Concern. Good house and workshops. Rent 80*l.* Lease over seven years. Plant, stock, and goodwill, 600*l.*—PEARCE, No. 8, Victoria-terrace, Hove.

BUILDER'S BUSINESS in rapidly developing south-west suburb. Freehold yard and buildings, close to station, machinery, horses, and carts. Ingoing about 3,000*l.* Or Partnership entertained. Every investigation courted.—Bonâ-fide applicants only apply, Mr. HICKS, Surveyor, Oval Station, Kennington Park, S.E.

Refer also to "TOO LATE" *column page* xix.

SURVEYORS' INSTITUTION EXAMINATIONS.—Complete courses of preparation, in class or by correspondence, in all divisions and sub-divisions. At the last six examinations the following prizes were obtained by Mr. PARRY'S pupils:—1895 and 1896: Institution Prize, Driver Prize, and Penfold Silver Medal. 1897: Institution Prize and Special Prize. 1898: Institution Prize, Special Prize, Driver Prize, Penfold Silver Medal, and Crawter Prize (one of the two bracketed winners of the last). 1899: Institution Prize, Special Prize, Driver Prize, Penfold Silver Medal, and Penfold Gold Medal (all the prizes but one). 1900: Driver Prize, Penfold Silver Medal, and Penfold Gold Medal. CONSIDERABLY MORE THAN HALF of the successful list were Mr. Parry's pupils.—Apply to Mr. RICHARD PARRY, F.S.I. A.M.I.C.E. 82, Victoria street, Westminster. Telephone No. 680, Westminster.

SANITARY INSPECTORS' and PRACTICAL SANITARY SCIENCE EXAMS of THE SANITARY INSTITUTE. Complete Courses of Instruction by correspondence for these and similar exams. conducted by Gentleman (Engineer, Surveyor, and Sanitary Institute), holding three Certificates from San. Inst. 1st Class Honours Medallist in Hygiene, &c. Several hundred successes. Classes for 1900 EXAMS. just commencing.—Apply, for Syllabus of Subjects, testimonials, &c. to C.S.I. 28, Victoria-street, Westminster, S.W.

SANITARY INSTITUTE EXAMS.—Preparation for the Inspectors' Examination by a system of correspondence needing no Text Books or Acts, by C. H. CLARKE, Assoc. San. Inst.; Fellow Inst. San. Engineers; Honours Medallist in Hygiene; Member of the Society of Arts and of Société Française d'Hygiène. See Clarke's Aids:—Calculation of Cubic Space, 1s.; Practical Drain Inspection, 6d.; Trade Nuisances, 6d. Sanitary Law (New Edition), 1s. 6d.—Prospectus from 120, Thorold-road, Ilford, E.

MUNICIPAL and COUNTY ENGINEERS' EXAMINATION.—Mr. RICHARD PARRY, A.M.I.C.E. F.S.I. &c. 82, Victoria-street, Westminster, prepares pupils by correspondence for this examination. The course of work may be taken to extend over six or twelve months according to previous knowledge. At the examination of last October, more than one-half of the successful candidates were prepared by Mr. Parry.

R.I.B.A. EXAMS.—PREPARATION personally or by correspondence, in three, six, nine, or twelve months' courses. ARCHITECTURAL LENDING LIBRARY. Special three months' finishing courses.—For full particulars apply to Messrs. HOWGATE & BOND, Associates R.I.B.A. 115, Gower-street, W.C. (close to the British Museum).

R.I.B.A. SOCIETY of ARCHITECTS, SURVEYORS' INSTITUTE, and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence or in residence. Private lessons in Stresses, Land Surveying, &c.—MIDDLETON & CARDEN, 19, Craven-street, Strand, W.C.

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION.
To THOMAS SHANNON MARTIN and EDWARD MARTIN.
Re THOMAS STANISLAUS QUINN'S TRUST and Re TRUSTEE ACT.

Take Notice that if you make any claim as CREDITORS of THOMAS QUINN or to the benefit of the Deed of Charge executed by the said Thomas Quinn dated the 15th December 1886 you are on or before the 25th day of FEBRUARY 1901 to give notice in writing of the particulars of such claim to Mr. A. E. WARD a member of the undersigned firm of Messrs. Ward Bowie & Co. and if so required to come in and prove such claim before Master Romer at the Chambers of Justices Byrne and Buckley Room No. 292 at the Royal Courts of Justice Strand London on WEDNESDAY the 27th day of FEBRUARY at TWELVE o'clock and that in default your claim if any will be barred.

Dated 21st January 1901.

WARD, BOWIE & CO.
7, King-street, Cheapside, E.C. Solicitors for William Moss and Charles Ash Hacker, Executors of the said Thomas Quinn deceased.

SPECIFICATION FOOLSCAP,
CREAM WOVE or AZURE LAID, 12s. 6d. per ream.
Sample sheets post free on application to
W. PURSLOW, Dealer in Writing Papers,
No. 63, City-road, London, E.C.

ACCOUNTANT (experienced) posts and writes up periodically builders', contractors', and builders' merchants' accounts at moderate and inclusive charges. Monthly audits undertaken, partnerships arranged, balance-sheets and profit and loss accounts prepared, arrears written up works in progress and abstracts of prime cost especially attended to.—Apply, ACCOUNTANT, 34, Offley-road, Brixton, S.W.

PARTNERSHIP wanted by an Architect and Surveyor in a well-established country practice within 20 miles of London. Moderate capital at command.—Box **244**, Office "The Builder."

BILLS OF QUANTITIES, &c.
LITHOGRAPHED CORRECTLY BY RETURN OF POST. A LIBERAL DISCOUNT OFF USUAL PRICES.
PLANS BEST STYLE.
ALLDAY, LIMITED.
Shakespeare Press, Birmingham.

INTERNATIONAL
BUILDING TRADES EXHIBITION,
1901.
OPEN from APRIL 17th to 27th.
For **VACANT SPACES** Apply to H. GREVILLE MONTGOMERY, 43, Essex Street, Strand, W.C

NOW READY.

"The Builder" Student's Series.

Books sent from the Office, POST FREE, on receipt of remittance.

7/6 LAND SURVEYING AND LEVELLING. By ARTHUR T. WALMISLEY, M.I.C.E. F.S.I. F.K.C.Lond. Hon.Assoc.R.I.B.A. With 140 Illustrations.
A useful book for a Student, containing not only the usual instruction given in a Text-book on this subject, but valuable additions from the author's own experience, and an exhaustive chapter upon Parliamentary surveying.

6/- FIELD WORK AND INSTRUMENTS. By ARTHUR T. WALMISLEY, M.I.C.E. F.S.I. F.K.C.Lond. Hon.Assoc.R.I.B.A. With 224 Illustrations.
Gives the Student a practical knowledge of the construction and handling of surveying instruments, and how to deal with their application in the field for setting out work.

7/- STRUCTURAL IRON AND STEEL. By W. N. TWELVETREES, M.I.M.E. With 234 Illustrations.
In this elementary Treatise, the author has endeavoured to present in a regular sequence some of the more important details relative to iron and steel as applied to structural work.

5/- STRESSES AND STRAINS; THEIR CALCULATION AND THAT OF THEIR RESISTANCES, BY FORMULÆ AND GRAPHIC METHODS.
By FREDERIC RICHARD FARROW, F.R.I.B.A. With 95 Illustrations.
A Handbook for Students, particularly those preparing for the examinations of the R.I.B.A. and arranged and intended especially for those whose knowledge of mathematics is limited.

3/6 SPECIFICATIONS FOR BUILDING WORKS, AND HOW TO WRITE THEM. A Manual for Architectural Students.
By FREDERIC RICHARD FARROW, F.R.I.B.A.
Shows the Student how he should write a specification, so that when he has learnt the method and general principles, he may apply them to the particular exigencies of any building he may design.

3/6 QUANTITIES AND QUANTITY TAKING. By W. E. DAVIS.
A reliable Handbook for the Student pure and simple, its scope being limited to the method of procedure in the production of a good Bill of Quantities. The examples given, whilst intentionally simple, will be found to cover almost every phase of the subject.

5/- CARPENTRY AND JOINERY: A Text-book for Architects, Engineers, Surveyors, and Craftsmen. By BANISTER F. FLETCHER, A.R.I.B.A. and H. PHILLIPS FLETCHER, A.R.I.B.A. A.M.I.C.E. With 424 Illustrations. 2nd Edition. Revised and corrected by the Authors.
Intended for those entering for the examination of the City and Guilds' Institute, the Carpenters' Company, and the Institute of Certified Carpenters, &c. Also for the examination in these subjects by the R.I.B.A. and the Surveyors' Institution, &c.

5/- ARCHITECTURAL HYGIENE; Or SANITARY SCIENCE AS APPLIED TO BUILDINGS. By BANISTER F. FLETCHER, A.R.I.B.A. and H. PHILLIPS FLETCHER, A.R.I.B.A. A.M.I.C.E. With 305 Illustrations.
A concise and complete Text-book, treating the subject in all its branches, and intended to be of use to those entering for any examination in Sanitary Science.

London: DOUGLAS FOURDRINIER "Builder" Office, Catherine Street, W.C.

ARCHITECT.—Young London Architect (West End) has time to DESIGN for, or ASSIST, busier man. Has thorough experience and knowledge of work, and is a designer and draughtsman of ability.—Box **149**, Office of "The Builder."

A THOROUGHLY qualified ARCHITECT can hear of an immediate opening in a busy office, West End, as MANAGING ASSISTANT with a view to eventual partnership. Must be ready with 500*l.* on security. Liberal salary.—Box **152**, Office of "The Builder."

ARCHITECT'S ASSISTANTS, &c.—Advertiser wishes to hear from any gentleman desirous of adding to his income without interference with his present employment, willing to join him in working up practice as quantity, estimating, and financial surveyors. Advertiser has promise of work and good chances. Preliminary expenses trifling. Only those who can influence work (much or little) need reply, in confidence, to SURVEYOR, Box **110**, Office of "The Builder."

ARCHITECT and SURVEYOR.—An ARCHITECT and SURVEYOR of experience (married; aged 42), who has for some years held an official appointment in South America, which he is thinking of resigning in the middle of this year and of returning to England, desires to PURCHASE a SHARE in an ARCHITECT and SURVEYOR'S BUSINESS of standing either in town or country. The latter preferred and Kent or Surrey, as he believes he could influence business in those counties. Strictest references given and required. The advertiser would prefer to communicate direct with principals in confidence, rather than through agents.—Address, E. N. K. The Yews, Reigate, a near relative of the gentleman in question.

ENGINEER STUDENTS in the NAVY (14½-16½). FORTHCOMING EXAMINATION, FEBRUARY 15, 1901. N.B.—At this Examination there will be practical tests in physics and chemistry. The date specified is the latest at which applications can be received. They must be made on forms to be obtained, with particulars, from the SECRETARY, Civil Service Commission, London, S.W.

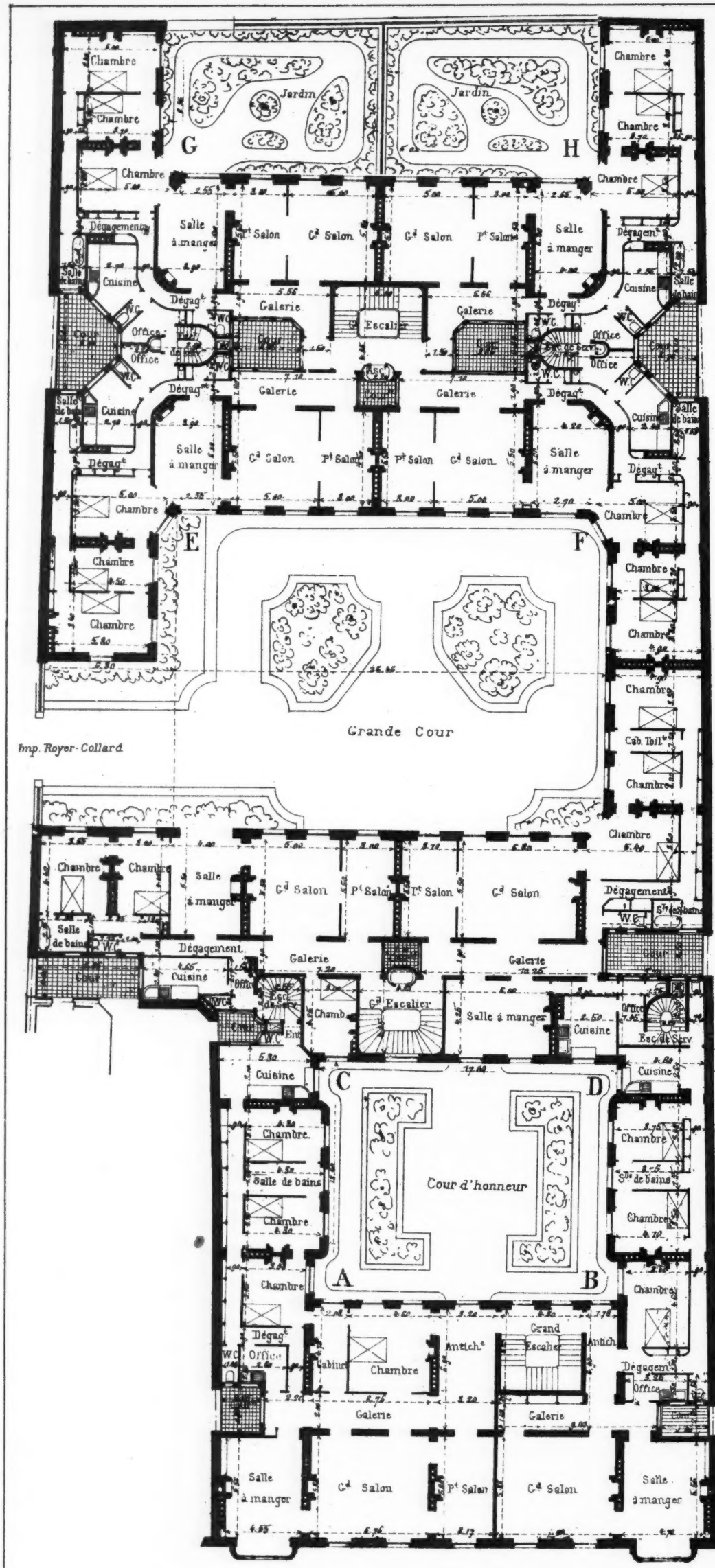
THE HACKNEY BOROUGH COUNCIL.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
The Council REQUIRE the SERVICES of a DRAUGHTSMAN who must be competent to take surveys and levels, and prepare accurate plans and sections for new roads, street improvements, and other similar works.
Preference will be given to candidates who have had experience in the preparation of estimates and apportionments for new road and paving works.
Salary, 2*l.* 2*s.* per week.
The appointment will, in the first instance, be made on probation for three months, and, in the event of the duties being satisfactorily discharged, will then be made permanent, subject to one month's notice on either side.
Applications, which should state age, qualifications, and present occupation, and be accompanied by not more than three testimonials of recent date, must be endorsed "Draughtsman," and be delivered to Mr. NORMAN S. ORGIE, C.E. Borough Engineer and Surveyor, Town Hall, Hackney, not later than FIVE p.m. on TUESDAY, the 29th JANUARY, 1901.
By order,
GEORGE GROCOTT,
Acting Town Clerk.

METROPOLITAN BOROUGH OF BETHNAL GREEN.
SANITARY INSPECTOR WANTED.
The Borough Council at a meeting to be held on THURSDAY, the 21st day of FEBRUARY, 1901, at SIX p.m. will proceed to appoint a DRAINAGE INSPECTOR, at a salary of 120*l.* per annum, increasing each year by 10*l.* up to 200*l.* The increase each year will be dependent upon a recommendation of the Sanitary Committee.
The person elected will be required to devote the whole of his time to the duties of the Office and not to be engaged or concerned in any other office, appointment, or occupation.
Candidates must hold the certificate of the Sanitary Institute, or such other qualifications as may be recognised by the Local Government Board.
No candidate's age shall exceed 40 years.
The appointment is subject to the approval of the Local Government Board.
The duties will be to carry out under the supervision of the Chief Inspector the reconstruction of House Drains, to supervise the execution of works, keep account of materials, keep all books and records, prepare plans, to make out all necessary returns, and the supervision of drainage and the enforcement of bye-laws in new buildings. No one need apply who is not thoroughly well acquainted with works of this description and with the quality and prices of different materials.
Applications, stating age, to be marked outside "Drainage Inspector," with copies of three recent testimonials, are to be sent to me at or before NOON on TUESDAY, the 12th FEBRUARY, 1901.
Candidates invited to attend the Council from the country will be allowed third-class return railway fare.
There is no official form of application, and canvassing by or on behalf of any candidate will be a disqualification.
ROBERT VOSS, Jun.
Town Clerk.
Town Hall,
Church-row, Bethnal Green, N.E.
January 19th, 1901.

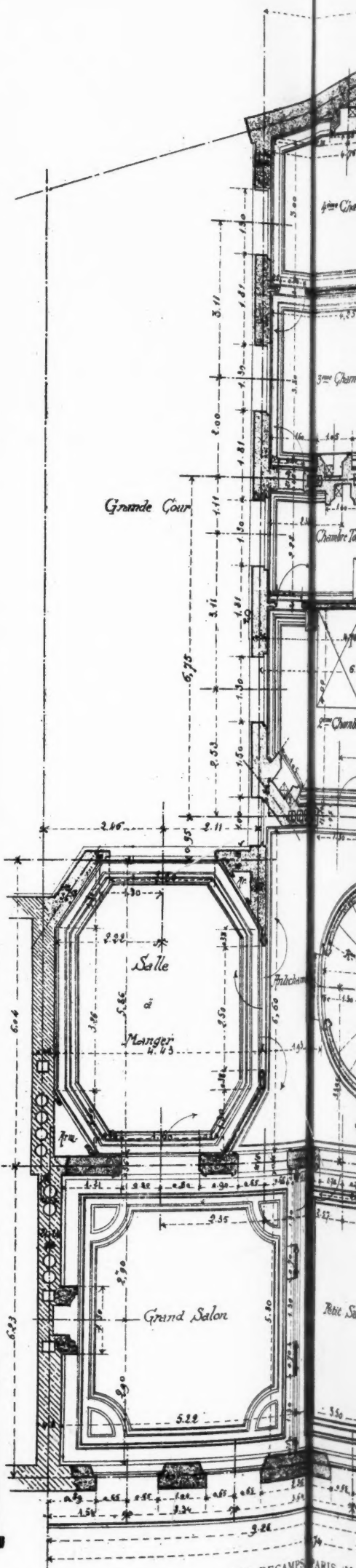
WALTHAMSTOW URBAN DISTRICT COUNCIL.
ENGINEER'S DEPARTMENT.
TWO TEMPORARY ASSISTANTS WANTED for a period of two months. Must be able to take out quantities. Expert leveller, quick draughtsmen, and well up in private street work. Salary, 2*l.* per week.—Applications, stating age, full particulars of experience, and enclosing copies of two recent testimonials, to be made at once to GEO. W. HOLMES, Engineer, Town Hall, Walthamstow.

HEXTON MANOR, near Hitchin, Herts.
WANTED, a CLERK of WORKS, to act under the directions of the Engineer and Architect, on the above alterations, which include rebuilding of Lodges, Cottages, and Mansion, Water Supply, and other Matters. Engagement for about 12 months.
Applications, on foolscap, with not more than three testimonials, stating age and salary required, to be addressed to me not later than WEDNESDAY, JANUARY, 30th.
By order,
JOHN WAUGH, C.E.
Sunbridge Chambers,
Bradford, Yorks.

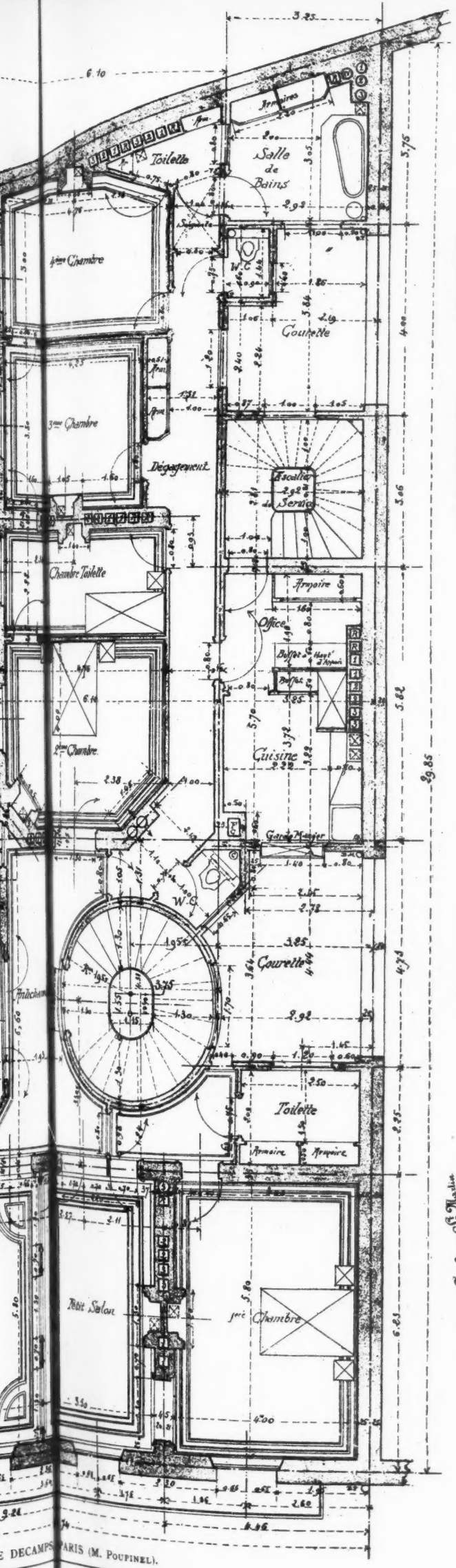
WANTED, an ASSISTANT in the Borough Surveyor's Office, Hove. Must be good draughtsman and acquainted with work of Borough Surveyor's Office.
Salary, 35*s.* per week.
Applications stating age and experience and accompanied by copies of not more than three testimonials, to be sent to
H. H. SCOTT.
Borough Surveyor.
Town Hall
Hove



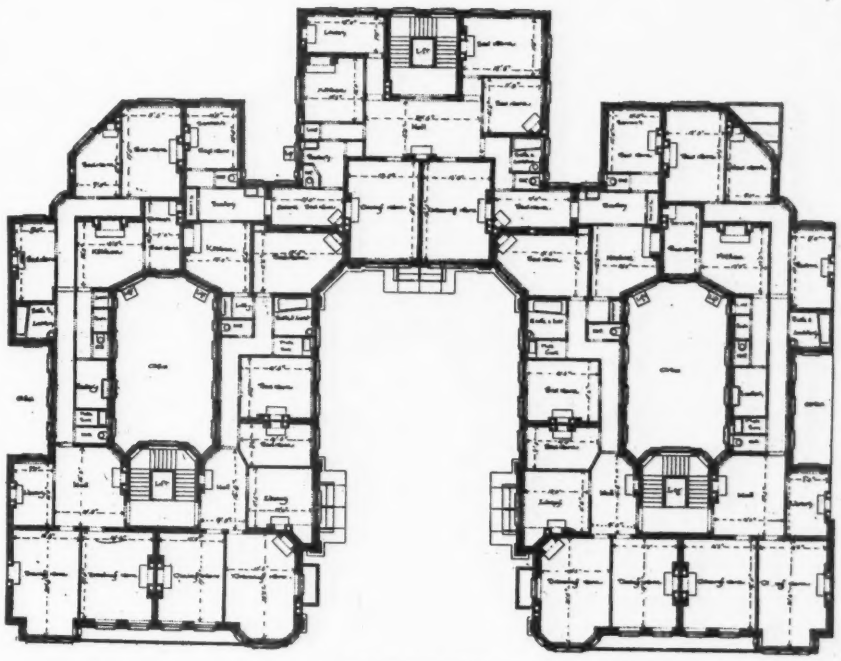
BOULEVARD ST. MICHEL, PARIS (M. M. J. NERROT).



RUE DECAMPS, PARIS (M.

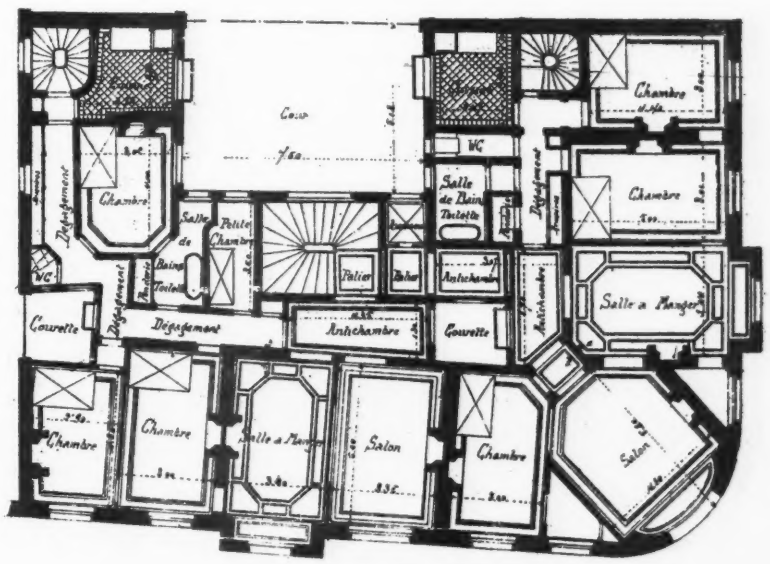


E DECAMPS, PARIS (M. POUPINEL).

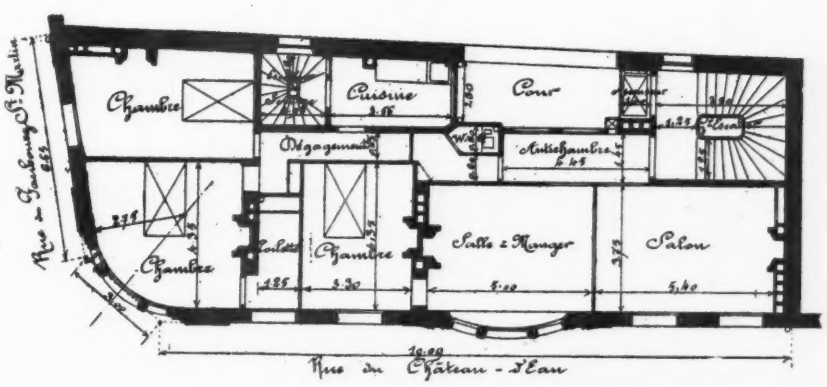


PLAN OF FIRST FLOOR.

FLATS: QUEEN'S GATE (MR. HOFFMANN).



RUE BLOMET, PARIS (M. COMPAND).



RUE DU CHÂTEAU D'EAU, PARIS (M. RIVES).

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

WOHNHAUSBAU FERSTEL G.s VIENNA.

ARCHITEKT: VIKTOR SIEDEK.

PARTERRE.

BAD.

HOF.

HOF.

HOF.

BAD.

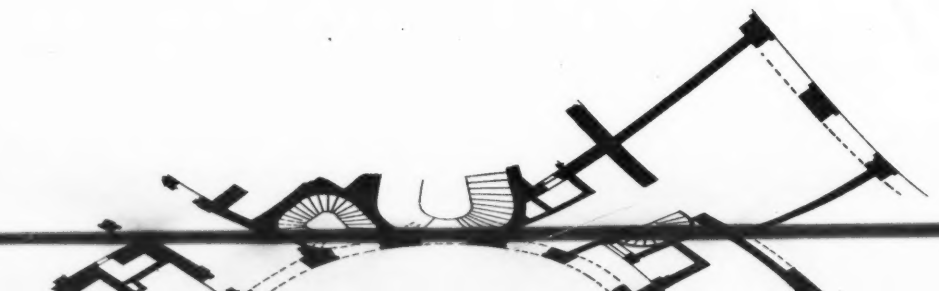
HOF.

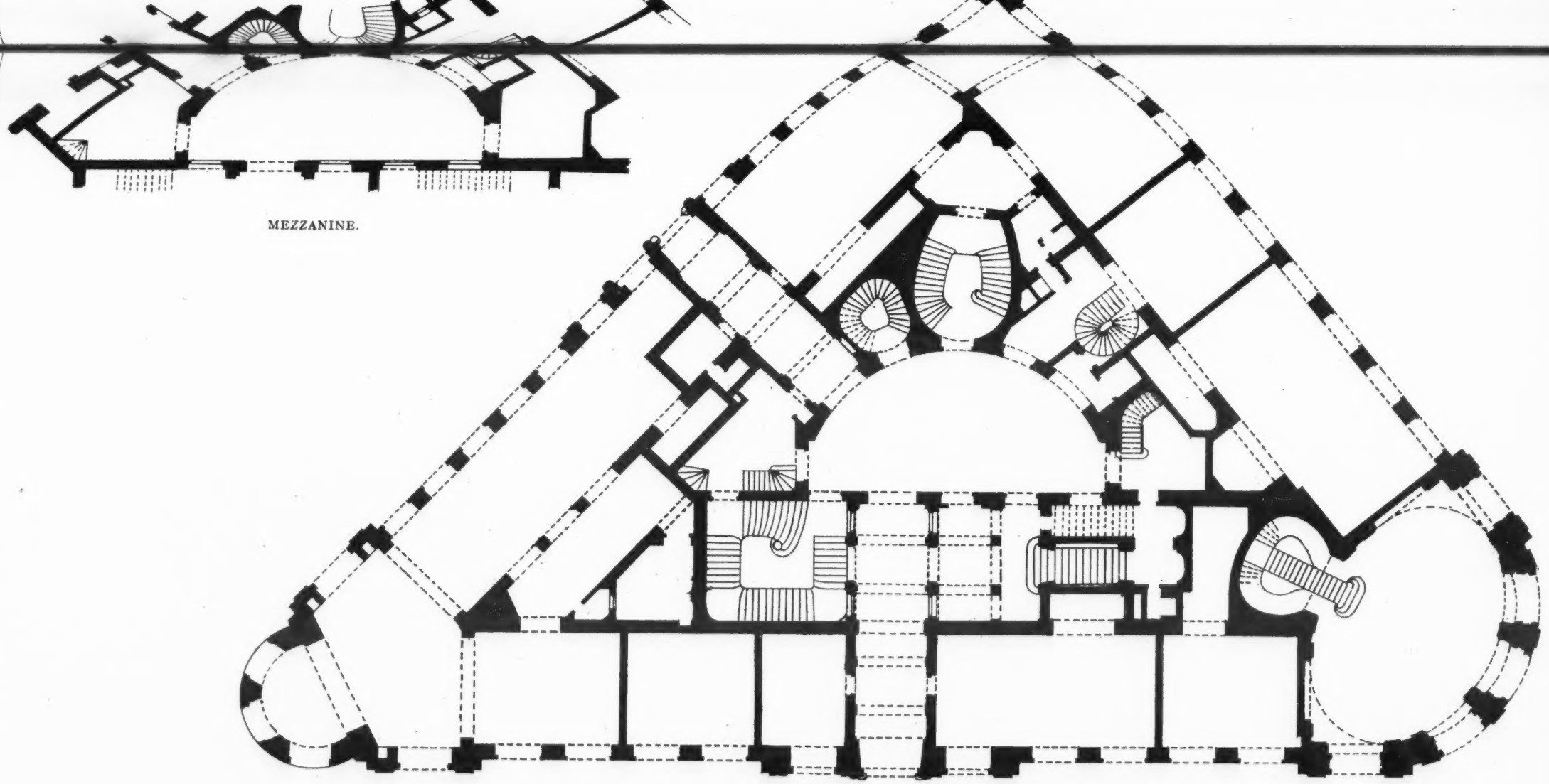
PALAIS LEON-WERNBURG

VI. BEZIRK. MAGDALENENSTRASSE 58&60

ARCHITECT: BAURATH VON NEUMANN.

I. STOCK





MEZZANINE.

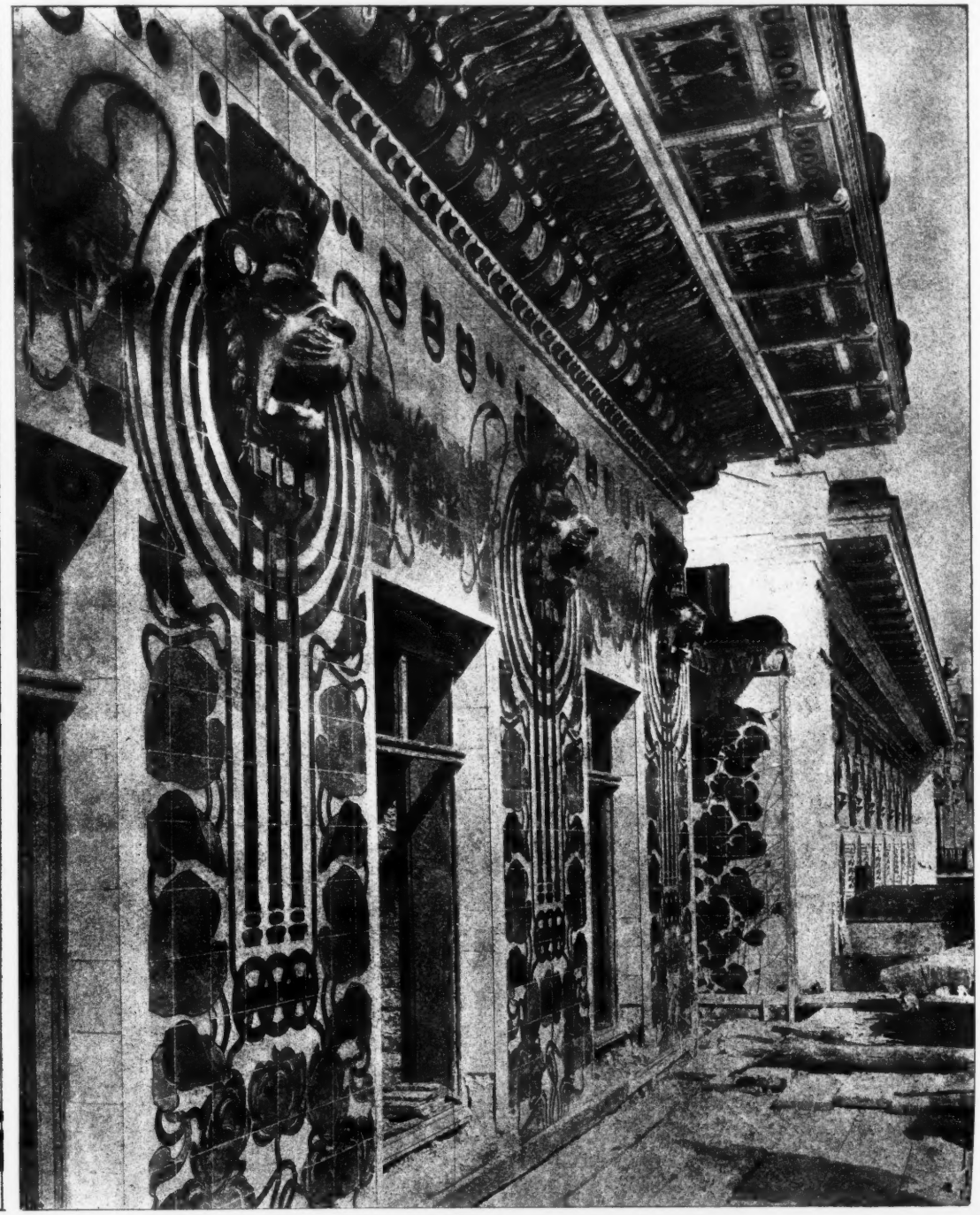
MANSION AND APARTMENT HOUSE, VIENNA (PROFESSOR KÖNIG).

6 0 1 2 3 4 5 6 7 8 9 10 11 12 Metres

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

PLANS OF APARTMENT HOUSES.

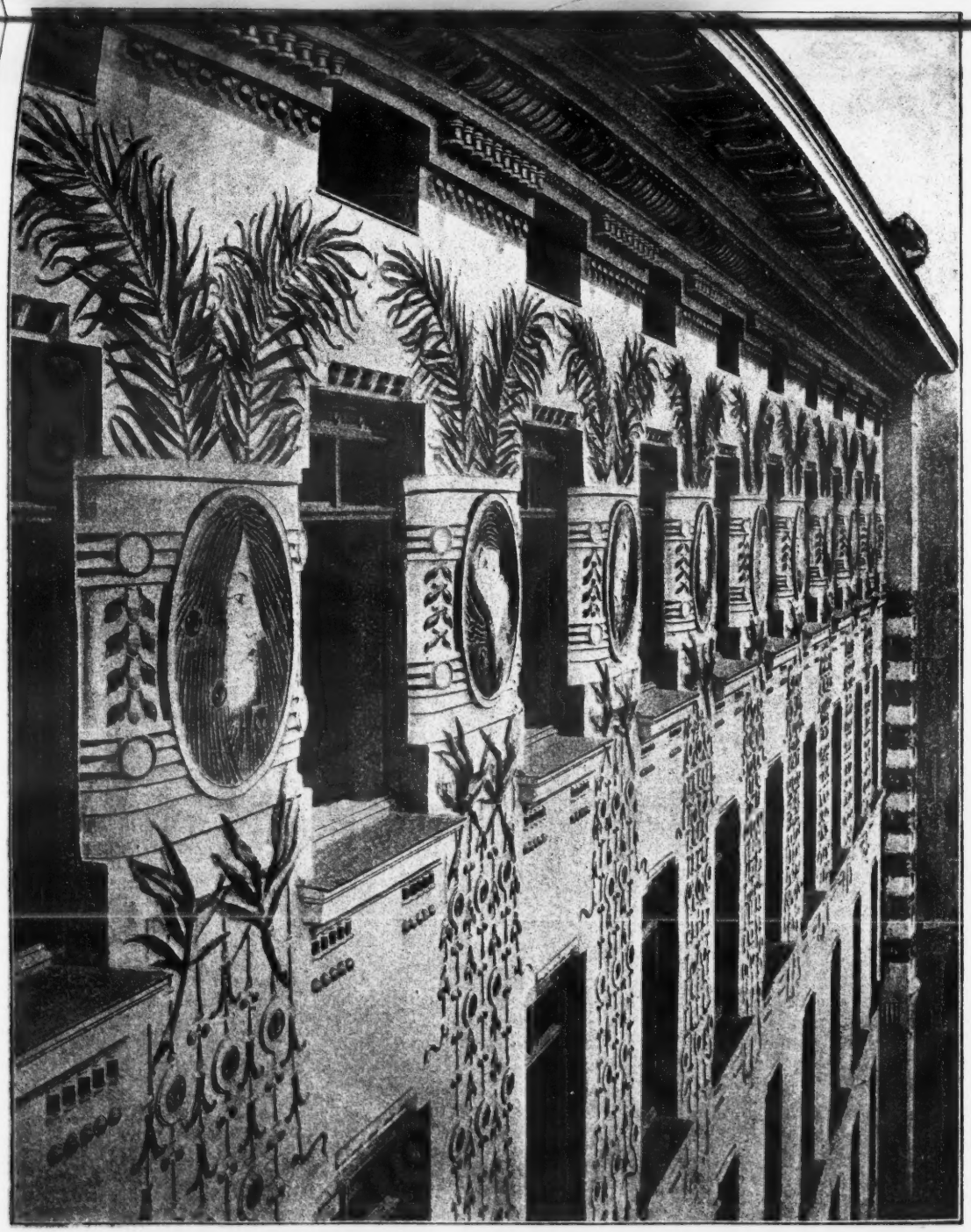
HOUSE AT VIENNA (Professor Deininger).

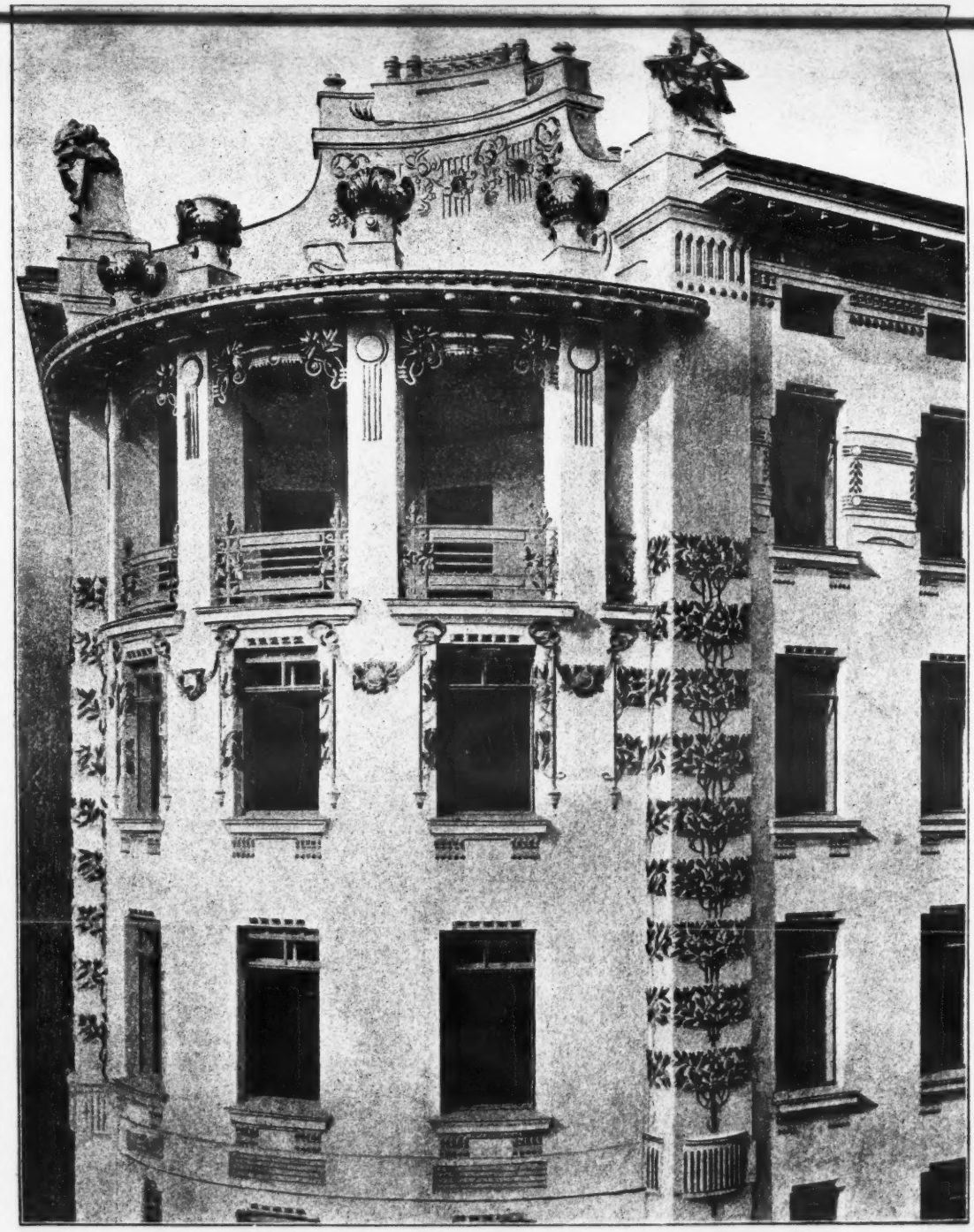


HOUSE AT VIENNA (Professor Wagner).

HOUSE AT VIENNA (PROFESSOR DEININGER).

HOUSE AT VIENNA (PROFESSOR WAGNER).





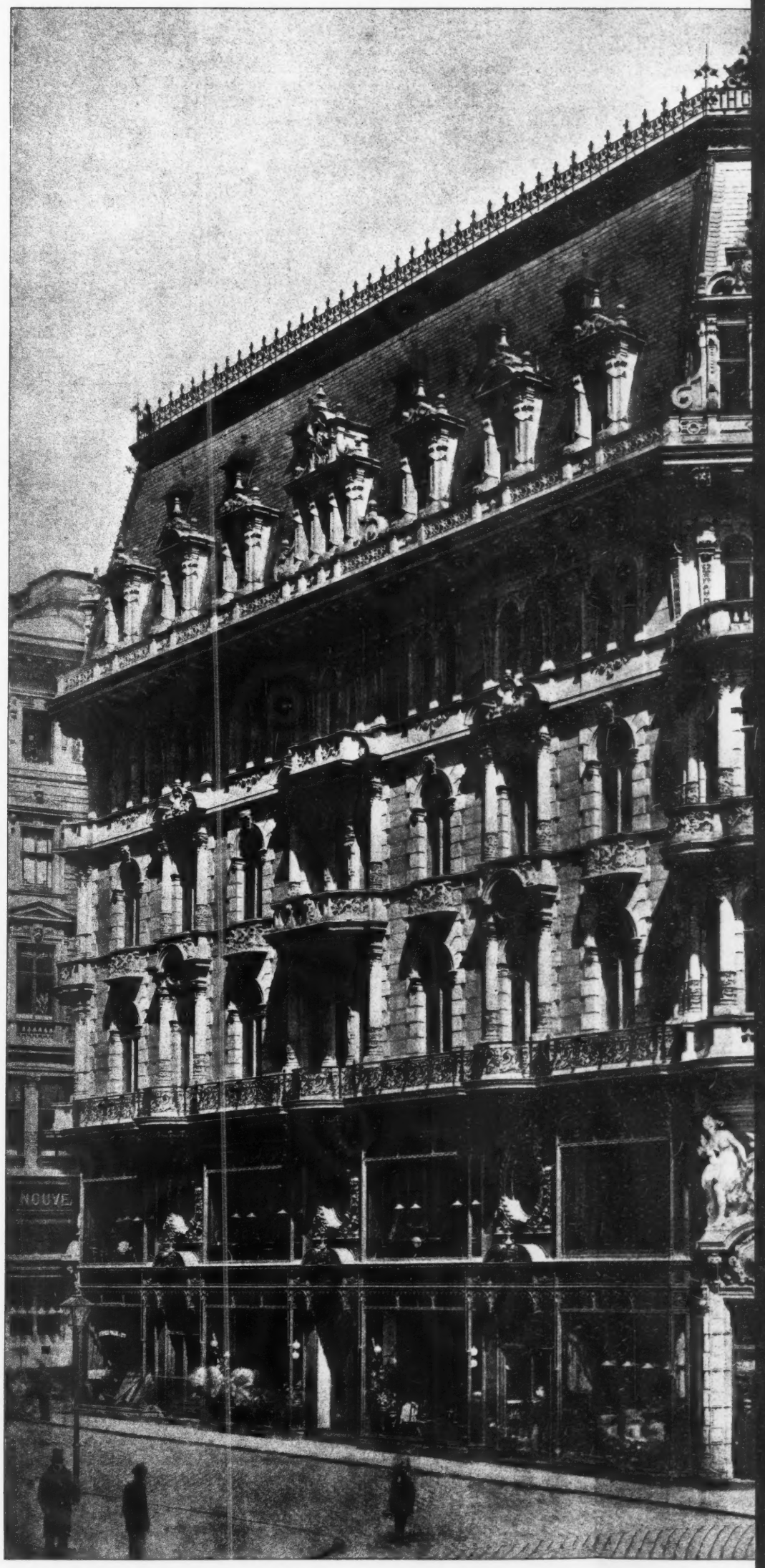
HOUSE AT VIENNA: FRONT AND ANGLE (PROFESSOR WAGNER).

INK-PHOTO, SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DER ROMAHOF, VIENNA (Professor Julius Deininger).

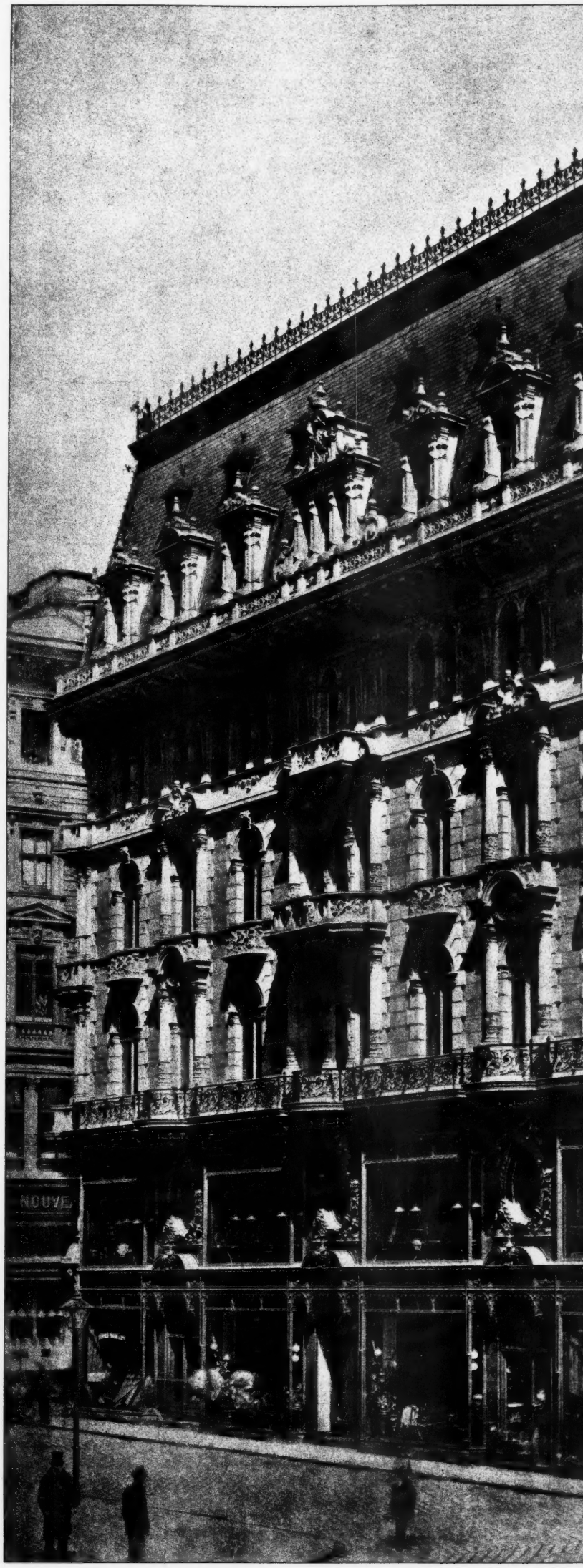
GENERAL LIBRARY,
UNIV. OF MICH.
FEB 6 1901

APARTMENT HOUSES.



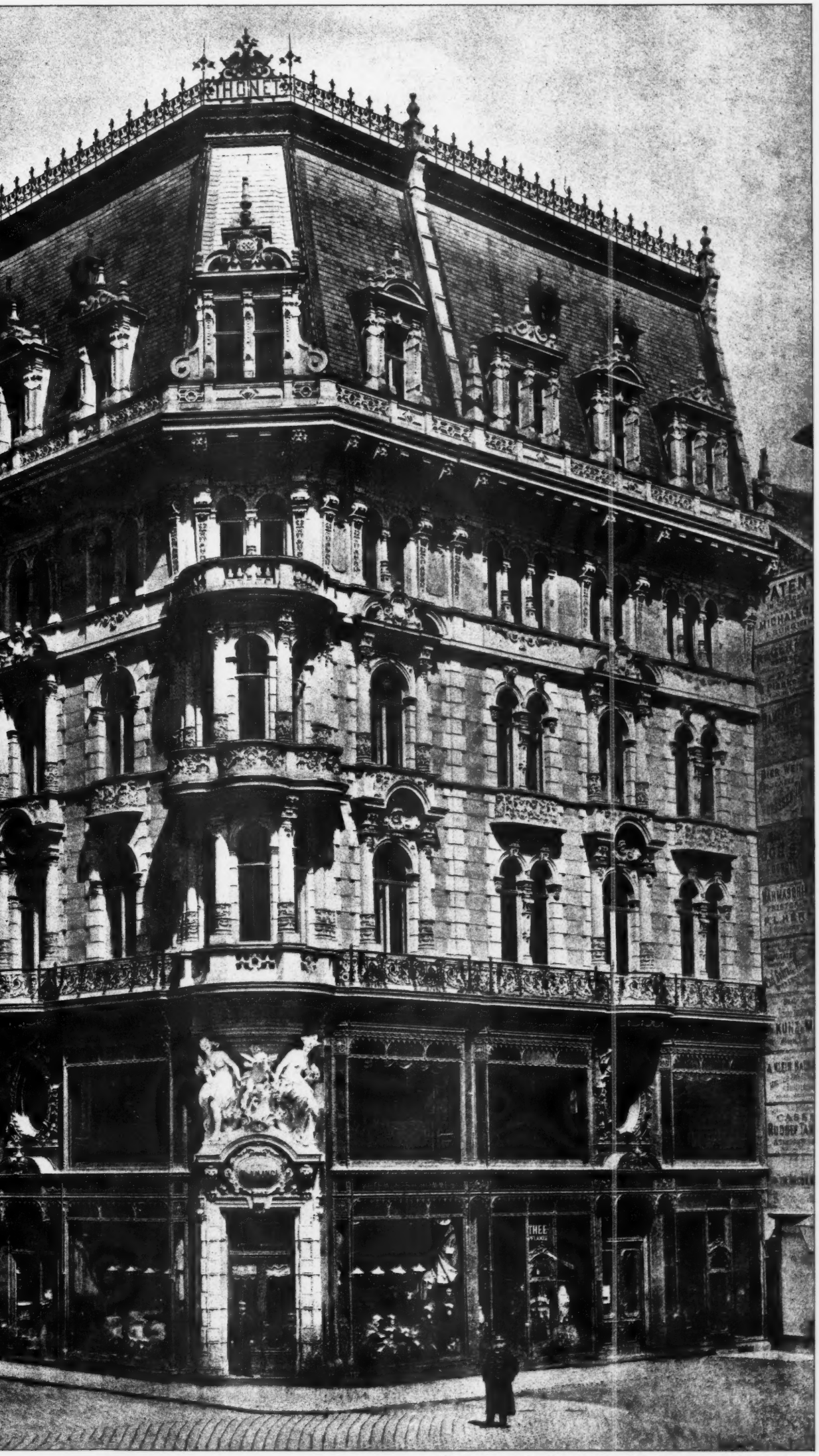
CORNER HOUSE, STEFANSPLATZ, VIENNA (

GENERAL LIBRARY,
UNIV. OF MICH.
FEB 6 1901



NT HOUSES.

CORNER HOUSE, ST



INK-PHOTO, SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

R HOUSE, STEFANSPLATZ, VIENNA (Messrs. FELLNER & HELMER).